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1986 CATALOGUE OF TRAINING COURSES AVAILABLE TO THE ATLANTIC FISHING INDUSTRY

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1986 CATALOGUE OF TRAINING COURSES AVAILABLE TO THE ATLANTIC FISHING INDUSTRY

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Sponsored by
The Atlantic Fisheries Development Branch
on behalf of
The Federal-Provincial Atlantic Fisheries Committee

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INTRODUCTION

This catalogue was prepared for Fisheries and Oceans Canada - Development Branch - in response to a need identified by the Federal Provincial Atlantic Fisheries Committee (FPAFC) for information about current fisheries training programs. This catalogue is a compilation of all training and education courses presently available in Eastern Canada to Fishermen, Plant Workers, Management, and persons involved in marine-related industries. In addition, three appendices include listings of: training-related publications and broadcast information programs; audio-visual and other media materials; and research centres. Information outlined in the appendices provides general reference sources for both the training institutions and the industry.

The bulk of this catalogue focuses on fisheries-related courses at Eastern Canadian training institutions, and its format is as follows. Each province in Eastern Canada is taken in alphabetical order and each of its training institutions is listed alphabetically and described briefly. Course offerings are compiled under four headings: Courses available to A) Fishermen; B) Plant Workers; C) Management; D) Fisheries and Marine-Related Industries (this latter category of courses includes those not offered specifically to fishermen). All courses are listed alphabetically by the course titling used by each institution. Each course listing provides information on its location, prerequisites (if any), duration, content and objectives.

Programs which lead to recognized degrees, preparation for Ministry of Transport Certificates of Competency, diplomas or other forms of certificates, are identified in this catalogue in the following ways. First, on pages v-xix, all certificate, diploma and degree courses and programs available in Eastern Canada are listed alphabetically. The key components (or, requirements) of these programs are charted along the right-hand side of these lists. At the bottom of each of these pages, a ledger appears which identifies the abbreviated key components and, where necessary, provides additional information on component terms. Secondly, prefacing the section for each province, are charts developed to indicate at which schools certificate programs are offered. Thirdly, charts indicating the required sequence in which groups of courses leading to Ministry of Transport certificates should be taken, appear on pages 36-37, 91-92 and 115-116. In all cases, these sequence charts precede course listings of those schools which requested such charts for inclusion in this catalogue.

A computer programme has been developed from this catalogue and is available for use. The programme can access all training and certificate programs in every Eastern province and provide a guide to all descriptions, requirements and other details about all courses appearing in this published version. It should be emphasized, however, that this computer programme, as well as all three forms of charts appearing in this catalogue - - of key components of each certificate program, of each province's school-by-school program offerings, and of sequential order required for certificate programs - - are intended for use as general reference tools. The full course descriptions should also be referred to; and interested potential students should write directly to schools or, where applicable, write to or arrange to meet with a Coast Guard official, for individualized information.

A glossary of terms and abbreviations frequently used throughout this catalogue follows this Introduction. In addition, occasional notes, marked by an asterisk (*), clarify course intent or indicate additional requirements. These same terms, abbreviations and notes appear in the computerized version, as do the key elements used in the charts outlining available certificate programs.

While this catalogue may be of use, in whole or in part, to a variety of audiences, the intent is to bring together, under one cover, for the first time, a listing of all training and education courses available at all levels to the fishing industry in Eastern Canada. In addition, and most importantly for future purposes, this catalogued material and accompanying computer programme represent a sound base-line from which to carry out further research and analysis.

GLOSSARY OF TERMS AND ABBREVIATIONS

CC	Certificate of Completion or of Accomplishment
CEGEP	College of General and Professional Studies (Quebec)
CN	Coastal Navigation
CPR	Cardiac Pulmonary Resuscitation
DFO	Department of Fisheries and Oceans Canada
(E)	Course offered in English
(F)	Course offered in French
FPAFC	Federal Provincial Atlantic Fisheries Committee
Marine Institute	Newfoundland and Labrador Institute of Fisheries and Marine Technology
MED	Marine Emergency Duties
MICR	Marine Institute of the CEGEP of Rimouski
MOT	Ministry of Transport
MUN	Memorial University of Newfoundland
NBC	CNew Brunswick Community Colleges
NS	Nova Scotia
NSNI	Nova Scotia Nautical Institute
Off-campus	Course offered anywhere in Province provided there are sufficient demand, resources and facilities
ON	Ocean Navigation
PEI	Prince Edward Island
RGMC	Radio-Communication Operator's General Certificate
R/T	Radio/Telephone Restricted License (Maritime) Certificate
SEN	Simulated Electronic Navigation
VC	Vocational Certificate

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DEGREE, CERTIFICATE AND DIPLOMA PROGRAMS AVAILABLE IN EASTERN CANADA, AND KEY COMPONENTS OF PROGRAMS

Certificate Programs	Key Components of Programs(or required courses or training)
I. Degree Programs	
Aquatic Productivity - M.Sc.	fh.
Fish Management - B.Sc.	bs; ch; co; fg; fh; fp; ma; oc.
Fisheries Engineering - M.Sc. & Ph.D.	ch; fh; fp; ms.
Food Science - M.Sc. & Ph.D.	ch; fh; fp.
Maritime Resource Management - M.Sc.	bs; fg; fh; fp.
Naval Architectural Engineering - B. Eng.	bs; ch; eg; es; me; ms; na; oc; ps; sk.
Ocean Engineering - M.Eng. & Ph.D.	eg; ma; ms; oc.
Physical Oceanography - M.Sc. & Ph.D.	oc; ps.

Ledger:

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DEGREE, CERTIFICATE AND DIPLOMA PROGRAMS AVAILABLE IN EASTERN CANADA, AND KEY COMPONENTS OF PROGRAMS

continued

Certificate Programs	Key Components
II. Courses Preparatory to MOT Examinations and Certification	
A) Nautical Science Options*	
Able Seaman	ni; se; sk; ss.
Bridgewatchman	ni; se; sk; ss.
CN I	cp; eg; mt; s2; se; sf; sk; sm; ss.
CN I Master Inland Waters	cp; mt; se; sf; sm; ss.
CN II	co; m3; se; sf; sk; sm; ss.
CN II First Mate Inland Waters	cp; eg; mt; se; sf; sk; sm; ss.

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***NOTE:** Enrollment in MOT certificate preparatory courses requires valid MOT eyesight certificate and MOT validation of candidate's sea service. All candidates should first consult with schools and MOT since course prerequisites and content may vary depending on individual candidate's experience and ability.

DEGREE, CERTIFICATE AND DIPLOMA PROGRAMS AVAILABLE IN EASTERN CANADA, AND KEY COMPONENTS OF PROGRAMS

continued

Certificate Programs	Key Components
II. Courses Preparatory to MOT Examinations and Certification	
A) Nautical Science Options (continued)	
Command Endorsement	cp; m2; mt; rt; s2; se; sm; ss.
Efficiency as Lifeboatman	sf (and MED lifesaving component).
Endorsement in Compass Deviation	ni.
First Mate Ferry Steamship (Short Run)	cp; ni; s1; se; sf; sk; sm; ss.
First Mate Ferry Steamship (Intermediate Run)	cp; ma; ni; s1; se; sf; ss.
First Mate Ferry Steamship (Long Run)	cp; ma; ni; s1; se; sf; sk; sm; ss.
Fishing Master Class I	an; co; cp; m2; mt; s2; se; sf; sk; ss.

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DEGREE, CERTIFICATE AND DIPLOMA PROGRAMS AVAILABLE IN EASTERN CANADA, AND KEY COMPONENTS OF PROGRAMS

continued

Certificate Programs	Key Components
II. Courses Preparatory to MOT Examinations and Certification	
A) Nautical Science Options (continued)	
Fishing Master Class II	co; cp; m2; ma; mt; ni; rt; s1; se; sf; sk; sm; ss.
Fishing Master Class III (Preparatory course also called Offshore Fishing)	co; cp; m2; ni; rt; sk; ss.
Fishing Master Class IV	cp; fh; m1: ni; rt; se; sf; sm; ss.
MED I* MED II*	*MOT certificate courses as well as components of other MOT courses. See Ledger for content at m1 and m2.
MED II-III Combined	m2; m3; sf; ss.
MED III	m1; m2 (both undertaken in leadership capacity); sf.

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DEGREE, CERTIFICATE AND DIPLOMA PROGRAMS AVAILABLE IN EASTERN CANADA, AND KEY COMPONENTS OF PROGRAMS

continued

Certificate Programs	Key Components
II. Courses Preparatory to MOT Examinations and Certification	
A) Nautical Science Options (continued)	
Master Ferry Steamship (Short Run)	bs; co; cp; m2; s2; se; sf; sk; sm; ss.
Master Ferry Steamship (Intermediate Run)	ma; s2, se; sk; sm; ss.
Master Ferry Steamship (Long Run)	co; cp; s2; se; sf; sk; sm; ss.
Master Mariner	eg; es; na; ni; se; sm; ss.
Master, Minor Waters	bs; cp; sf; sk; ss.
Master Small Craft and Master Small Passenger Craft (Preparatory course also called Coastal Pilotage)	bs; cp; m1; sf; sk; ss.

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DEGREE, CERTIFICATE AND DIPLOMA PROGRAMS AVAILABLE IN EASTERN CANADA, AND KEY COMPONENTS OF PROGRAMS

continued

Certificate Programs	Key Components
II. Courses Preparatory to MOT Examinations and Certification	
A) Nautical Science Options (continued)	
Navigation (pre-MOT preparation)	an; bs; cp; es; fg; m2; ma; ms; mt; ni; s1; se; sk.
ON I	an; bs; cp; eg; mt; ni; s2; sk; sm; ss.
ON I Master Home Trade	cp; eg; mt; ni; s2; se; sf; sk; sm; ss.
ON II	an; co; eg; m3; sf; sk; sm; ss.
ON II First Mate Home Trade	an; co; eg; se; sk; sm; ss.
Petroleum Tanker Safety	ms; sf; sk.
SEN I	ni; sf.
SEN 2	cp; ni; sf.
Watchkeeping Mate	m2; ma; rt; s1; ss.

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DEGREE, CERTIFICATE AND DIPLOMA PROGRAMS AVAILABLE IN EASTERN CANADA, AND KEY COMPONENTS OF PROGRAMS

continued

Certificate Programs	Key Components
II. Courses Preparatory to MOT Examinations and Certification	
B) Marine Engineering Options*	
Chief Engineer of a Motor-Driven Fishing Vessel	eg; es; m2; ma; me; ms; ss.
Gas or Diesel Engines	ch; eg; m1; me; ms; ps; sf.
Marine Diesel Mechanics	co; eg; es; ma; me; ms; ps; sf.
Marine Engineer 1st Class	eg; es; m2; me; ms; na; ps; ss.

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DEGREE, CERTIFICATE AND DIPLOMA PROGRAMS AVAILABLE IN EASTERN CANADA, AND KEY COMPONENTS OF PROGRAMS

continued

Certificate Programs	Key Components
II. Courses Preparatory to MOT Examinations and Certification	
B) Marine Engineering Options (continued)	
Marine Engineer 2nd Class	eg; es; m2; ma; me; na; ss.
Marine Engineer 3rd Class	eg; es; m2; ma; sf; ss.
Marine Engineer 4th Class	eg; m2; ma; me; ms; ps; sf; ss.
Marine Engineering	bs; ch; eg; es; ma; me; ms; ps; ss.
Watchkeeping Engineer of a Motor-Driven Fishing Vessel	eg; m2; ma; ms; sf; ss.

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DEGREE, CERTIFICATE AND DIPLOMA PROGRAMS AVAILABLE IN EASTERN CANADA, AND KEY COMPONENTS OF PROGRAMS

continued

Certificate Programs	Key Components
III. Diploma Programs	
Able Fisherman	cp; es; fg; fh; m1; m2; ma; ms; oc; ps; se; sf; we.
Certificate of Fisheries Studies	bs; fg; fh; fp; ma; oc.
Electrical Engineering, Diploma of Technology	co; eg; es; ma; me; ms; ps.
Electronics, Diploma of Technology	co; eg; es; ma; me; ms; ni; ps.
Fishing Techniques, CEGEP Diploma	bs; ch; es; fh; fp; ma; ps.
Food Processing, Diploma of Technology	bs; ch; co; eg; es; fh; fp; ma; ms; ps; sh.
Harvesting and Marine Resource Management, CEGEP Diploma	co; cp; eg; es; fg; fh; me; ms; mt; ni; sf; sk; sm.
Marine Engineering, CEGEP Diploma	bs; ch; eg; es; ma; me; ms; ps; ss.

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DEGREE, CERTIFICATE AND DIPLOMA PROGRAMS AVAILABLE IN EASTERN CANADA, AND KEY COMPONENTS OF PROGRAMS

continued

Certificate Programs	Key Components
III. Diploma Programs (continued)	
Marine Engineering, Diploma of Technology	ch; co; eg; es; ma; me; ms; na; ps; we.
Marine Systems Design, Diploma of Technology	bs; co; eg; es; ma; me; ms; na; ps.
Nautical Science (Fishing Technology and Merchant Marine Options), Diploma of Technology	ch; co; eg; es; fg; fh; ma; ms; mt; na; ni; oc; ps; s1; se; sk; ss.
Naval Architecture, CEGEP Diploma	bs; eg; ma; me; na; ps; ss.
Naval Architecture, Diploma of Technology	bs; co; eg; es; ma; me; ms; na; ps; sk.
Navigation, CEGEP Diploma	an; bs; es; ma; ms; mt; ni; s1; sk; ss.
New Entry Seaman, Diploma of Seamanship	co; fg; ni; se; sf; sh; sk; ss.

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DEGREE, CERTIFICATE AND DIPLOMA PROGRAMS AVAILABLE IN EASTERN CANADA, AND KEY COMPONENTS OF PROGRAMS

continued

Certificate Programs	Key Components
III. Diploma Programs (continued)	
Power Engineering, Diploma of Technology	ch; co; eg; es; ma; me; ms; ps; we.
IV. CC and VC Programs	
Aquaculture Technology (CC)	bs; fh.
Deckhand Offshore Fleet (CC)	fg; sh.
Deckhand (Pre-Sea) Merchant Marine (CC)	m2; se; sf.
Engineering Cadet (CC)	eg; es; m1; ma; me; na; ps; sk.
Fish Processing Machine Maintenance (CC)	me; ms.

Ledger:

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DEGREE, CERTIFICATE AND DIPLOMA PROGRAMS AVAILABLE IN EASTERN CANADA, AND KEY COMPONENTS OF PROGRAMS

continued

Certificate Programs	Key Components
IV. CC and VC Programs (continued)	
Fishing Business Practices and Record-Keeping (CC)	bs; ma.
Fishing Income Tax Update (CC)	bs; ma.
Hydraulics (CC)	ms.
Industrial Instrumentation (VC)	co; eg; es; ma; me; ps.
Introduction to Quality Control in Fish Plants (CC)	bs; fh; fp; sh.
Marine Cooking and Stewarding (VC)	bs; cf; m1; sh.
Marine Diesel Mechanics (VC)	ms.

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DEGREE, CERTIFICATE AND DIPLOMA PROGRAMS AVAILABLE IN EASTERN CANADA, AND KEY COMPONENTS OF PROGRAMS

continued

Certificate Programs	Key Components
IV. CC and VC Programs (continued)	
Marine Electrical Practice (VC)	co; eg; ms; na.
Marine Electronics (VC)	co; eg; es; ma; ps.
Marine Engineering - Pre-Employment (CC)	ch; eg; me; ms; ps; sf.
Marine Gas and Diesel Engine Maintenance (CC)	eg; es; me; ms.
Marine/Industrial Control Electronics (CC)	es.
Marine Refrigeration (CC)	ms.
Marine Steelwork (VC)	co; ma; na; sf.
Marine Stewarding (VC)	cf; m2; sh.
Navigation Cadet (CC)	cp; fg; m2; mt; ni; s1; se.
Nets and Gear (CC)	fg; fh.
Pre-Sea Training (CC)	eg; fg; m1; ni; rt; sf.

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DEGREE, CERTIFICATE AND DIPLOMA PROGRAMS AVAILABLE IN EASTERN CANADA, AND KEY COMPONENTS OF PROGRAMS

continued

Certificate Programs	Key Components
IV. CC and VC Programs (continued)	
Processing of Marine Products (28 weeks) (CEGEP CC)	bs; fh; fp.
Processing of Marine Products (63 weeks) (CEGEP CC)	bs; ch; fh; fp; ma; ps.
Production Supervision and Enhancement	bs.
Quality Assessment and Industrial Sanitation (CC)	fh; fp; sh.
Radio-Communications (CC)	co; es; ma; ms; mt; ni; oc.
Radio-Communications (VC)	co; eg; es; ma; ms; ps; rt.
Restricted Radio/Telephone Operator (CC)	co; rt.
Refrigeration (CC)	me; ms.
Refrigeration and Air Conditioning (CC)	ms.

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DEGREE, CERTIFICATE AND DIPLOMA PROGRAMS AVAILABLE IN EASTERN CANADA, AND KEY COMPONENTS OF PROGRAMS

continued

Certificate Programs	Key Components
IV. CC and VC Programs (continued)	
Refrigeration Plant Operation (VC)	ch; co; eg; es; ma; me; ms; sf.
Scuba Diving for Fishermen (CC)	sd.
Seafood Processing (VC)	bs; co; fh; fp; ma; sf; sh.
Small Craft Design (VC)	bs; eg; fg; na.
Tanker Familiarization (CC)	sf; sk.
Trawlerman Offshore Fleet (CC)	fg; fh; se; sf.
Welding for Fishermen (CC)	sf; we.

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I. NEW BRUNSWICK

FISHERIES AND MARINE—RELATED PROGRAMS AND COURSES:
DEGREES; MOT CERTIFICATE PREPARATION; DIPLOMAS; CERTIFICATES OF COMPLETION OR ACCOMPLISHMENT (CC) OR VOCATIONAL CERTIFICATES (VC)

	Degrees	MOT Certificate Preparation	Diploma	CC or VC
Fisheries Industrial Training, Government of New Brunswick	None	None	None	None
New Brunswick Community College, Bathurst	None	None	None	None
New Brunswick Community College, St. Andrews	None	*Nautical Science Options*: Fishing Master Class 4; MED I	None	Fishing Business Practices & Record-keeping (CC); Hydraulics (CC); Marine Refrigeration (CC); Nets & Gear (CC); Welding for Fishermen (CC)
Operations & Services Division, Department of Fisheries	None	None	None	None
School of Fisheries	None	*Nautical Science Options*: Command Endorsement; Fishing Master Class 1, 2, 3, 4; MED I & II; Master Ferry Steamship; Master Minor Waters; Master Small Craft; SEN I & II; Watchkeeping Mate *Marine Engineering Options*: Chief Engineer of Motor-Driven Fishing Vessel; Gas or Diesel Engines; Marine Engineer Class 3, 4 (Motor); MED I & II; Watchkeeping Engineer of a Motor-Driven Fishing Vessel	Able Fisherman, 1st and 2nd years	None
University Centre at Shippagan	B.Sc., Bachelor of Fish Management	None	Certificate of Fishery Studies	None

I. NEW BRUNSWICK

Fisheries Management and Industrial Training Program
Department of Commerce and Development
Government of New Brunswick
P.O. Box 6000
Fredericton, New Brunswick
E3B 5H1

Telephone (506) 453-2876
Telex 014-46100

The Department of Commerce and Development, Government of New Brunswick, sponsors the Fisheries Management and Industrial Training Program, which offers public, in-house and co-operative seminars. The following public seminar offerings have been developed to meet industry needs and to give employees opportunities to learn new techniques which can be applied effectively to their jobs.

A. FISHERMEN

No courses offered.

B. PLANT WORKERS

In past years, courses for plant workers have been offered at the Memramcook Institute at St. Joseph by the Department of Commerce and Development, in areas such as refrigeration, sanitation and hygiene. To organize training courses for plant workers, contact the Department of Commerce and Development at the above address.

C. MANAGEMENT

The following is a list of Fisheries Management and Industrial Training Programs sponsored by the New Brunswick Department of Commerce and Development. The courses listed below were offered from December-March, 1983-84. For more up-to-date information, contact the Department of Commerce and Development.

INTRODUCTION COURSE FOR THE NEW FOREMAN

Location:	Memramcook Institute, Saint Joseph (F)
Duration:	5 days, Winter
Description:	Bacteriology, quality control, refrigeration and freezing, machine maintenance, fish processing methods, sanitation, productivity and human relations.
Objective:	To introduce the new supervisor or foreman to the basic principles of working in a fish plant.

MOTIVATION AND INCREASING WORK PERFORMANCE

Location:	Memramcook Institute, Saint Joseph (F)
Duration:	4 days, Winter
Description:	Self-development, attitude change, controlling stress and anxiety, techniques of communications, the supervisor's job, constructive discipline, effective leadership, motivation techniques, management skills.
Objective:	The participants will learn the importance of self-motivation and how to motivate other employees they supervise.

OPERATION AND MAINTENANCE OF THE AERENCO MACHINE

Location:	Maisonnette, New Brunswick (F)
Duration:	4 days, Winter
Description:	A practical course on the operation and maintenance of the Aerenco Machine - limited to 12 participants.

QUALITY CONTROL FOR PLANT PRODUCTION AND QUALITY PERSONNEL

In 1984, this course was arranged for and presented exclusively to the members of the United Maritime Fishermen. The course is available on request.

QUALITY CONTROL: A MANAGEMENT DECISION

Location:	Memramcook Institute, St. Joseph (E) or (F)
Duration:	4 days, Winter
Description:	Quality control programing & its place in the plant, standards & codes of practice, control points in terms of evaluating, testing, grading & sampling, yields & profits, inter-department communication, developing quality conscious workers, team problem solving, links between yield, productivity efficiency & customer satisfaction.
Objective:	To teach plant processors why quality control programing, when implemented as a management style, will result in a consistently acceptable product at a better yield & will contribute to increased profits.

QUALITY CONTROL PROGRAMING

Location:	Memramcook Institute, Saint Joseph (E)
Duration:	5 days, Winter
Description:	A 5-day seminar under the direction of people directly involved in quality control, from Quality Control and Product Development Divisions of Fisheries & Oceans Canada and from Fisheries Industrial Training, Department of Commerce & Development, Government of New Brunswick.
Objective:	For owners, managers, quality control personnel and production managers to learn the steps required to implement a quality control program.

TECHNIQUES OF SUPERVISION AND ON-THE-JOB TRAINING

Location:	Memramcook Institute, Saint Joseph (E)
Duration:	4 days, Winter
Description:	Design, prepare and conduct an in-plant training program.
Objective:	To develop the basic skills required by any foreman or supervisor in doing his job.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

No courses offered.

New Brunswick Community College (NBCC)
Bathurst Campus
P.O. Box 1
Bathurst, New Brunswick
E2A 3Z2

Telephone (506) 548-4591

The Bathurst Campus is located in northeastern New Brunswick at Chaleur Bay. In its Technology Building courses and facilities are provided for the technological training needs of the French-speaking population of New Brunswick. The Technology Building was founded in 1975, and its facilities and programs are closely co-ordinated with techniques and demands of industry.

A. FISHERMEN

No courses offered.

B. PLANT WORKERS

No courses offered.

C. MANAGEMENT

No courses offered.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

QUALITY CONTROL TECHNICIAN

Location:	NBCC, Bathurst Campus (F)
Prerequisites:	High school completion, with courses in Mathematics, Biology and French + Chemistry course an asset or relevant work experience.
Duration:	52 weeks
Description:	Loading & transporting, processing different species, procedures for freezing, smoking & preserving, drawing up a quality control program and putting it in place according to the laws of the sector.
Objective:	To train skilled technicians in the area of quality control, particularly for the fishing sector.

New Brunswick Community College (NBCC)
St. Andrews Campus
P.O. Box 427
St. Andrews, New Brunswick
E0G 2X0

Telephone (506) 529-8801, Ext. 143

The New Brunswick Department of Fisheries and the New Brunswick Department of Community Colleges jointly administer a program of fishermen's training in the Fundy region. The program is taught at the St. Andrews campus. The Community College has the stated objective to provide programs related to community needs. St. Andrews, with its large fishing industry, is an ideal location for an institution to provide training and support programs for fishermen and fishery-related industries. The Community College offers courses in areas such as the following:

Ministry of Transport Certification

- Fishing Master, Class IV
- MED I

Adult Education/Extension Courses

- Fishing Courses
- General Education

Trade & Occupational Training Courses

- Boat Building
- Marine Mechanics
- Refrigeration
- Aquaculture Technician

Programs are designed for fishermen engaged in the primary or secondary fishing industry. The training programs for fishermen are scheduled during the winter months; and, depending on fishermen's requests, some extension courses are also offered on the Fundy Isles. Applicants are required to register at their nearest Canada Employment Centre. The majority of courses limit enrollments to 12 trainees.

The programs in Refrigeration, Aquaculture and Boatbuilding, for example, are the only courses of their type provided on any campus of the New Brunswick Community Colleges. The St. Andrews campus plans to respond to training needs which will assist the fishing industry in its fight for recovery.

A. FISHERMEN

FISHING BUSINESS PRACTICES AND RECORD-KEEPING

Location:	NBCC, St. Andrews & Off-campus (E)
Prerequisites:	A good basic education is an asset; a close association with the fishing industry is the prime requisite.
Duration:	2 weeks, Winter
Description:	Registering & insuring a fishing boat, the business entity, payroll, Income Tax, Provincial & Federal subsidies, keeping a record book, general business practices.
Objective:	To assist fishermen in learning the skills and knowledge required to keep records for managing a small business with proficiency.
Certificate:	The New Brunswick Community College grants a certificate of successful completion.

FISHING MASTER CLASS IV*

Location:	NBCC, St. Andrews & Off-campus (E)
Prerequisites:	Good formal education an asset + at least 17 years of age + not less than 12-months' sea service on voyages extending beyond smooth or partially smooth water limits on vessels of not less than 5 tons gross tonnage + valid MOT sight test certificate.
Duration:	6 weeks, Fall, Winter & Spring
Description:	Navigating instruments, chartwork & pilotage, navigation safety, general seamanship.
Objective:	To prepare fishermen to sit the MOT examinations for Certificate of Competency as Fishing Master Class IV.

*Candidates must also complete MED I and obtain the R/T restricted license certificate.

HYDRAULICS*

Location:	NBCC, St. Andrews Campus (E)
Prerequisites:	Experience as fisherman prime requisite; previous experience in hydraulics an asset.
Duration:	3 weeks, Winter
Description:	Theory of hydraulics, hydraulic circuits & systems used in fishing industry, pumps, motors, control valves, cylinders, hoses & fittings, testing & evaluation of gear, hydraulic systems - proper sizing of pumps and motors.
Objective:	To instruct fishermen, boat owners and marine mechanics in theory, efficient operation, maintenance and repair of industrial and marine hydraulic equipment.
Certificate:	New Brunswick Community College grants a certificate of successful completion.

*Course for experienced fishermen.

MARINE EMERGENCY DUTIES I (MED I)*

Location:	NBCC, St. Andrews & Off-campus (E)
Prerequisites:	Good formal education an asset; experience as fisherman prime requisite. Must have experience on a fishing vessel.
Duration:	1 week, Fall, Winter, Spring
Description:	Lifesaving appliances, firefighting, rescue & survival, First Aid.
Objective:	To provide basic safety instructions to operators of small fishing vessels in New Brunswick.

*This certificate is a prerequisite for Fishing Master Classes III & IV.

MARINE REFRIGERATION

Location:	NBCC, St. Andrews Campus (E)
Prerequisites:	Must be a fisherman, or work in fishery-related industry.
Duration:	4 weeks, Winter
Description:	Theory of refrigeration, compressors and refrigerants found on board boats, refrigerated sea water systems, ice making and freezing equipment, product storage, condensors, maintenance and effective use of equipment.
Objective:	To train fishing crews and engineers in the operation of refrigeration equipment on-board fishing vessels.
Certificate:	New Brunswick Community College grants a certificate of successful completion.

NETS AND GEAR

Location:	NBCC, St. Andrews & Off-campus (E)
Prerequisites:	Some formal education an asset; experience as fisherman prime requisite.
Duration:	6 weeks, Winter
Description:	Mending and splicing ropes and wires, construction and repair of various types of nets, rigging, deck equipment, trouble-shooting, care of the catch. (Course may vary with geographical location and local demand.)
Objective:	To provide fishermen with the knowledge and skill required to perform deck duties on all types of fishing vessels; to construct, maintain and repair fishing gear, and to familiarize fishermen with methods used in operating fishing gear.
Certificate:	New Brunswick Community College grants a certificate of successful completion.

WELDING FOR FISHERMEN

Location:	NBCC, St. Andrews & Off-campus (E)
Prerequisites:	Must be a fisherman, or work on a boat as a helper or mate. Some experience with welding an asset but not essential.
Duration:	4 weeks, Winter
Description:	Arc welding, oxy-acetylene welding, welding safety, basic metallurgy, practice.
Objective:	To develop safe practices and become familiar with welding equipment; and to develop the basic skills required to join metals in the flat position.
Certificate:	New Brunswick Community College grants a certificate of successful completion.

B. PLANT WORKERS

No courses offered.

C. MANAGEMENT

No courses offered.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

AQUACULTURE TECHNICIAN

Location:	NBCC, St. Andrews Campus (E)
Prerequisites:	High school graduation, or equivalent. Preference given to applicants with demonstrated ability in science subjects.
Duration:	48 weeks (23 weeks theoretical and laboratory training; 25 weeks on-site practical training)*
Description:	Operation and maintenance of hatchery facilities, structure, function, health, epidemiology, nutrition and feeding of aquatic species, basic culture techniques, finfish, invertebrate culture, management techniques and aquaculture management.
Objective:	To train the graduate in aquacultural skills used to catch and spawn brood stock, formulate and prepare diets for fish, care for fish in all stages of development, operate and manage hatcheries and market live fish and shellfish.

*The theoretical and laboratory training take place at the Huntsman Marine Laboratory. The on-site practical training consists of five 5-week sessions at different aquaculture operations.

BOAT BUILDING*

Location:	NBCC, St. Andrews Campus (E)
Prerequisites:	High school graduation, or equivalent.
Duration:	2 years, Fall-Spring
Description:	Boat building and repair, marine drafting, lofting I, basic design, boat building co-op (all above courses have theory and practical requirements); advanced lofting, mechanical application and fibreglassing.
Objective:	To train the graduate in boat building skills of construction, repair and maintenance of craft built by various methods and driven by sails, oars or engines.

*Two-month practicum with a commercial boat builder for July and August between 1st and 2nd years.

MARINE MECHANICS*

Location:	NBCC, St. Andrews Campus (E)
Prerequisites:	High school graduation, or equivalent.
Duration:	1 year
Description:	Gasoline and diesel engines and components, propulsion, steering and deck gear, hydraulic components and systems, electrical components and systems (all subjects taught through theory and practical training).
Objective:	To provide graduates with fundamental knowledge and skills required to check, remove, repair, install and/or adjust the major mechanical components of boats commonly used in the Bay of Fundy fishery.

*Some mechanical experience and/or familiarity with boats and boat handling would be a definite asset to the student.

REFRIGERATION AND AIR CONDITIONING*

Location:	NBCC, St. Andrews Campus (E)
Prerequisites:	Grade X, or equivalent.
Duration:	1 year
Description:	Use and care of trade tools and test equipment, principles of refrigeration cycle, fundamentals of electricity, servicing of electric motors, assembling of copper and steel tubing and piping, servicing of electrical controls, study of pipe systems, application of installation procedures, preparations necessary for start-up of systems.
Objective:	To provide graduates with knowledge and skills required for installation, service and repair of commercial and industrial refrigeration and air conditioning equipment used in all industries which require temperature-controlled environments, such as fish processing plants, canneries and transportation companies utilizing refrigerated containers.

*Facilities exist on campus for extensive practical experience to be acquired in each phase of the program.

Operations and Services Division
Department of Fisheries
Government of New Brunswick
P. O. Box 6000
Fredericton, New Brunswick
E3B 5H1

Telephone (506) 453-2047

The Department of Fisheries, Government of New Brunswick, has held a number of salmon aquaculture workshops during 1985-86 at St. Andrews. Topics covered range from leasing land and obtaining permits for hatcheries, spawning, diet, disease and management of broodstock, financial, legal and insurance considerations, and many other areas of concern to commercial aquaculturalists.

A. FISHERMEN

No courses offered.

B. PLANT WORKERS

No courses offered.

C. MANAGEMENT

No courses offered.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

For more information on salmon aquaculture workshops offered, contact the Department of Fisheries, Government of New Brunswick.

School of Fisheries of New Brunswick
P.O. Box 178
Caraquet, New Brunswick
E0B 1K0

Telephone (506) 727-6531

The School of Fisheries is located at Caraquet on the Baie des Chaleurs situated on the north-east coast of New Brunswick. This school, as well as the Marine Emergency Duty Centre nearby, is operated by the New Brunswick Department of Fisheries, and has a thirty-four bed dormitory. Fishermen can thus be provided with the opportunity to learn in both a residence and classroom atmosphere. Courses offered at the School of Fisheries include the following areas:

General Professional Training

- Able Fisherman, 1st year
- Able Fisherman, 2nd year

Ministry of Transport Certification

- Nautical Science Options (Fishing Master & Deck Officer)
- Marine Engineering Options

Adult Education/Extension Training

- Fishing Gear and Fishing Techniques
- General Education

The personnel of the School of Fisheries administers and implements a program of extension training for fishermen in Fishing Vessel Management, Fishing Gear and Navigation. These courses are available to fishermen in their own communities depending on the resources available and the demand for the courses. Fishermen who wish to attend these courses must contact either the New Brunswick Department of Fisheries Regional Office in Shédiac (532-2461) or in St. Stephen (466-3928), or the School of Fisheries (727-6531). Fishermen should check with the nearest Canada Employment and Immigration office concerning funding for the courses.

The School of Fisheries is located in an area which is largely French-speaking; thus the courses are demanded and taught in French. For courses where students work on their own at their own pace, students have studied and can continue to study in English or French. To access other courses in English, eight to ten students must demand them. Extension courses will be taught in the language of the region involved.

A. FISHERMEN

ABLE FISHERMAN (IST YEAR)

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	17 years of age + in labour force at least one year + good basic education an asset.
Duration:	14 weeks, beginning November and December
Description:	Fishing gear I, introduction to electricity, welding I, water safety, mathematics I, physics I, metric system, oral & written communication, care of fish, ichthyology & crustacea, oceanography, MED I, industrial safety.
Objective:	To provide the fisherman or the future fisherman with an opportunity to acquire the basic knowledge of his trade and so become a skilled inshore or offshore fisherman.

ABLE FISHERMAN (2ND YEAR)

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	17 years of age + in labour force at least one year + good basic education an asset.
Duration:	15 weeks, beginning November
Description:	Nautical science I, machine I, water safety, hydraulics, MED II, mathematics II, physics II, industrial safety.
Objective:	To provide the fisherman or the future fisherman with an opportunity to acquire the basic knowledge of his trade and so become a skilled inshore or offshore fisherman.

CHIEF ENGINEER OF A MOTOR-DRIVEN FISHING VESSEL

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	Watchkeeping Engineer's certificate + at least 18 years of age + have served at least 36 months on regular watch as engineer of motor ship of not less than 127 kilowatts propulsion power or 4th class Engineer Officer's certificate + have served at least 12 months on regular watch as engineer on motor ship of not less than 127 kilowatts propulsion power or fisherman at least 18 years of age + have served on regular watch as engineer on motor ship of not less than 56 kilowatts propulsion power + 36 months as watchkeeping engineer on motor ship of not less than 127 kilowatts propulsion power.
Duration:	Maximum of 22 weeks, beginning November
Description:	Machine V, MED II, water safety, mathematics I (optional), physics III (optional).
Objective:	To prepare the fisherman for the MOT examinations for Chief Engineer of a Motor-Driven Fishing Vessel certificate.

FISHING GEAR I - BASIC KNOWLEDGE

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	17 years of age + in labour force at least one year.
Duration:	6 weeks, beginning January and February
Description:	Fishing gear I, water safety, mathematics II, metric system, MED I, industrial safety.
Objective:	To provide the inshore fisherman with necessary knowledge to repair and rope their own nets.

FISHING GEAR II - OTTER TRAWL AND SEINE

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	Able Fisherman diploma or Fishing Gear I certificate from School of Fisheries or basic knowlege already acquired in the field.
Duration:	5 weeks, beginning February
Description:	Fishing gear II (otter trawl and seine), water safety, mathematics II, metric system, industrial safety.
Objective:	To complete the knowledge of the deckhand working on a dragger or a seiner in the highly specialized field of otter trawl and seine.

FISHING MASTER CLASS IV

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	Able Fisherman diploma or fisherman at least 17 years of age + good eyesight + fairly good basic education an asset + 12 months at sea in vessels of not less than 5 tons gross tonnage.
Duration:	Maximum of 14 weeks, November to March
Description:	Nautical science II and III, MED II, seamanship, machine I, care of fish, ichthyology and crustacea, oceanography, business administration, mathematics I, physics I and II, water safety, metric system, industrial safety.
Objective:	To prepare the fisherman for Fishing Master Class IV certificate examinations from MOT.

FISHING MASTER CLASS III

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	Fishing Master Class IV certificate or fisherman at least 18 years of age + good eyesight + fairly good basic education an asset + 24 months at sea in vessels of not less than 5 tons gross tonnage.
Duration:	Maximum of 13 weeks, November to March
Description:	Nautical science II, III and IV, water safety, mathematics I.
Objective:	To prepare the fisherman for the Fishing Master Class III certificate examinations from MOT.

FISHING MASTER CLASS II

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	Fishing Master Class IV or III certificate + at least 19 years of age + good eyesight + fairly good basic education an asset + 24 months at sea in vessels of at least 5 tons gross tonnage.
Duration:	Maximum 20 weeks, November to March
Description:	Nautical science II, III, IV and V, SEN I, water safety.
Objective:	To prepare the fisherman for the Fishing Master Class II certificate examinations from MOT.

FISHING MASTER CLASS I

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	Fishing Master Class II certificate + at least 20 years of age + 12 months at sea as Fishing Master Class II on a fishing vessel of at least 25 tons gross tonnage.
Duration:	Maximum of 20 weeks, November to March
Description:	Nautical science II, III, IV, V and VI, water safety, SEN II.
Objective:	To prepare the fisherman for the Fishing Master Class I certificate examinations from MOT.

GAS OR DIESEL ENGINES*

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	Practicing fisherman + at least 17 years of age + be in labour force at least one year.
Duration:	7 weeks, beginning January
Description:	Machine III, MED I, water safety, metric system, industrial safety.
Objective:	To provide the fisherman with knowledge in motor mechanics and to prepare him for the MOT examinations for Watchkeeping Engineer of Motor-Driven Fishing Vessel certificate.

*Course for practicing fishermen.

MARINE EMERGENCY DUTIES I (MED I)*

Location:	Marine Emergency Duty Centre, Caraquet (F) or (E)
Duration:	1 week
Description:	Lifesaving appliances, firefighting and prevention, survival and rescue, emergency safety-oriented First Aid.
Objective:	To prepare students for MED I, MOT examinations.

*Requisite for minor certificates.

MARINE EMERGENCY DUTIES II (MED II)*

Location:	Marine Emergency Duty Centre, Caraquet (F) or (E)
Duration:	3 weeks
Description:	Lifesaving appliances, firefighting, survival and rescue, standard safety-oriented First Aid.
Objective:	To prepare students for MED II, MOT examinations.

*Requisite for senior certificates.

OUTBOARD MOTORS*

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	Practicing fisherman + 17 years of age + be in labour force at least one year.
Duration:	3 weeks, beginning November
Description:	Machine IV, water safety.
Objective:	To assist inshore fisherman in doing good maintenance to prevent major problems in their outboard motors, and also to do minor repairs.

*Course for practicing fishermen.

REFRIGERATION*

Location:	School of Fisheries, Caraquet (F) or (E)
Duration:	4 weeks, beginning February
Description:	Refrigeration, metric system, water safety, industrial safety.
Objective:	To train fishing vessel engineers in the operation and maintenance of the refrigeration equipment aboard these vessels.

*Course for engineer/future engineer on-board fishing vessel.

SIMULATED ELECTRONIC NAVIGATION I (SEN I)

Location:	School of Fisheries, Caraquet (F) or (E)
Duration:	5 weeks
Description:	Physical characteristics, limitation, capacity, efficacy and usefulness to navigation of radio-navigation instruments, radar and bearing instruments.
Objective:	To provide fishermen and mariners with practical ways of developing and improving capacities and aptitudes in art of maritime navigation; and to increase confidence and competence in avoiding collisions.
Certificate:	A MOT certificate of completion is issued.

SIMULATED ELECTRONIC NAVIGATION II (SEN II)

Location:	School of Fisheries Caraquet (F) or (E)
Prerequisites:	Successful completion of SEN I course.
Duration:	2 weeks
Description:	Water safety, survival and rescue.
Objective:	To prepare and enhance skills in planning a practical course for the ship to follow in coastal and pilotage waters, having due regard to all navigational factors, identifying and taking collision-avoidance action in multi-ship situations, with and without navigational restrictions, and to develop increased levels of confidence and competence in art of blind pilotage.
Certificate:	A MOT certificate of completion is issued.

WATCHKEEPING ENGINEER OF A MOTOR-DRIVEN FISHING VESSEL

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	Able Fisherman diploma or fisherman at least 18 years of age + 12 months on regular watch as engineer on a motor ship of not less than 56 kilowatts propulsion power.
Duration:	Maximum of 10 weeks, beginning November
Description:	Machine III, MED II, water safety, mathematics I, physics III, industrial safety.
Objective:	To prepare the fisherman for the MOT examinations for Watchkeeping Engineer of a Motor-Driven Fishing Vessel certificate.

WELDING I*

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	Be an employee in the primary or secondary fishing industry + at least 17 years of age + be in labour force at least one year.
Duration:	5 weeks, beginning February
Description:	Welding I, water safety, metric system, industrial safety.
Objective:	To enable the fisherman to carry out minor welding jobs aboard a fishing vessel and also to build crab traps.

*Course for persons employed in the primary or secondary fishing industry.

WELDING II

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	Must have completed the Welding I course or the Able Fisherman course, 1st year.
Duration:	5 weeks, beginning February
Description:	Welding II, water safety, metric system, industrial safety.
Objective:	To enable the fisherman and the engineer to complete their knowledge in this area.

NOTE: ADULT EDUCATION — OFF-CAMPUS TRAINING

Fishermen who wish to attend courses such as Fishing Gear, Motor Mechanics and Nautical Sciences in their own communities must contact either the New Brunswick Department of Fisheries Regional Office in Shediac (532-2461), or in St. Stephen (466-3928), or the School of Fisheries in Caraquet (727-6531).

NOTE: FISHERIES TRAINING ADAPTED TO NEEDS OF FOREIGN COUNTRIES

This teaching program is adapted to the particular needs of the fishing industry of a specific country. These proficiency courses of 5 to 6 months duration are taught preferably from April to October - an opportune period during which the candidates can receive, at the same time, theoretical training at the school and practical training on-board fishing vessels.

B. PLANT WORKERS

DOCKSIDE FISH GRADERS, PART I

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	Minimum grade 10, or its equivalent + one year general experience in the fishing industry + be at least 18 years of age + full colour vision + skill or formalized training in filleting/splitting of fish + recommendation from a fish buyer.
Duration:	2 weeks
Description:	Training in classroom in grading procedures.
Objective:	To fully prepare students to grade various groundfish species in accordance with the recognized quality grades for groundfish.

DOCKSIDE FISH GRADERS, PART II

Location:	At fish landing site (F) or (E)
Prerequisites:	Same as 'Dockside Fish Graders, Part I'.
Duration:	2 weeks
Description:	Apprenticeship or on-the-job practical training in grading procedures.
Objective:	To provide the student with necessary practical experience and proficiency in grading major species of groundfish and also to ensure that satisfactory advice is offered to fishermen regarding grade improvements where applicable.

C. MANAGEMENT

No courses offered.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

COMMAND ENDORSEMENT (350 TONS)*

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	Watchkeeping Mate certificate + 3-years' sea service in vessels of not less than 5 tons gross tonnage.
Duration:	Varies, beginning November, December or January
Description:	Chartwork and pilotage, meteorology, ship management, general seamanship.
Objective:	To prepare students for the MOT examinations for Command Endorsement (350 tons) certificate.

*Candidates must also obtain a First Aid certificate, R/T certificate, MED II certificate and certificate of attendance at SEN II course.

INITIATION TO AQUACULTURE*

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	17 years of age + be in labour force at least one year.
Duration:	6 weeks, beginning January
Description:	Mollusca, salmonidea, fishing gear (ostreiculture and pisciculture), water safety, metric system, visits and workshops, lifesaving.
Objective:	To teach basic knowledge to individuals interested in various types of aquaculture farming.

*Candidate must possess an oyster or mussel lease or have made a request to possess a salmonidea culture.

MARINE ENGINEER, 4TH CLASS MOTOR

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	Watchkeeping Engineer certificate + at least 18 years of age + 24 months at sea in engine room of a motor ship of not less than 225 kilowatts propulsion power or fisherman/seaman at least 18 years of age + 36 months in engine room of a motor ship of not less than 225 kilowatts propulsion power.
Duration:	Maximum of 22 weeks, beginning November
Description:	Machine VI, water safety, MED II, industrial safety, physics IV.
Objective:	To prepare the candidate for the MOT examinations for Engineer 4th Class Motor certificate.

MARINE ENGINEER, 3RD CLASS MOTOR

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	4th Class Motor certificate + at least 12 additional months at sea as engineer officer or engineer on watch in the engine room of a motor ship of not less than 350 kilowatts propulsion power.
Duration:	22 weeks, beginning November
Description:	Applied mathematics, general & motor engineering knowledge, water safety, industrial safety.
Objective:	To prepare the candidate for the MOT examinations for Engineer 3rd Class Motor certificate.

MASTER FERRY STEAMSHIP (SHORT RUN)*

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	At least 3-months' sea service + 20 years of age.
Duration:	Varies, beginning November, December or January
Description:	The 'short run' examination is based on as much of the syllabus for the Master, Minor Waters course as the examiner deems appropriate to the area of operation and the type of craft for which the certificate is valid.
Objective:	To prepare students for the MOT examinations for Master Ferry Steamship (Short Run) certificate.

*Candidates must also obtain a R/T certificate (if vessel has radio station), MED II certificate (if vessels employed do not exceed 100 tons gross tonnage, MED I certificate may be substituted), SEN II course certificate (only for Intermediate and Long run certification), and First Aid certificate (not required for vessels employed which do not exceed 100 tons gross tonnage).

MASTER, MINOR WATERS*

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	At least 12-months' sea service on a ship of at least 5 tons gross tonnage. (Certificate not issued until candidate is 20 years of age.)
Duration:	Varies, beginning November, December or January
Description:	Chartwork and pilotage, ship masters' business and knowledge, oral and practical.
Objective:	To prepare students for the MOT examinations for Master, Minor Waters certificate.

*Candidates must also obtain a R/T certificate and MED II certificate.

MASTER OF A SMALL CRAFT AND MASTER OF A SMALL PASSENGER CRAFT*

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	The applicant must produce proof of experience on the water for which the certificate is required; if certificate is to be valid on ships engaged in commercial towing, applicant must produce proof of not less than 6-months' experience on such a ship. (Certificates not issued until candidate is 20 years of age. Applicants must be 18 years of age if certificates are to be valid on ships carrying not more than 40 passengers and not engaged in commercial towing.)
Duration:	Varies, beginning November, December or January
Description:	The oral and practical examination is based on as much of the syllabus for the Master, Minor Waters course, as the examiner deems appropriate to the area of operation and the type of craft for which the certificate is to be valid.
Objective:	To prepare students for the MOT examinations for Master of a Small Craft and Master of a Small Passenger Craft certificate.

*Certificate is valid on vessel of not more than 40 tons gross tonnage, to carry not more than 40 passengers and not more than 65 feet in overall length.

WATCHKEEPING MATE*

Location:	School of Fisheries, Caraquet (F) or (E)
Prerequisites:	At least two-years' sea service on voyages extending beyond minor waters on vessels of not less than 5 tons gross tonnage; 6 months or less may be accepted as qualifying sea service for voyages not extending beyond minor or smooth or partially smooth water limits. (A certificate of competency as Watchkeeping Mate will not be issued until applicant is 18 years of age.)
Duration:	Varies, beginning November, December or January
Description:	Navigating instruments, chartwork and pilotage, general ship knowledge, navigation safety, general seamanship.
Objective:	To prepare students for the MOT examinations for Watchkeeping Mate certificate.

*Candidates must also obtain SEN I course certificate, MED II certificate and a R/T certificate.

University Centre of Shippagan
University of Moncton
Shippagan, New Brunswick
E0B 2P0

Telephone (506)336-4761

The University Centre of Shippagan (University of Moncton) offers a degree program in Fish Management and a certificate program in Fishery Studies. The latter program is open to candidates wishing to acquire some training in the multidisciplinary aspects of the fisheries. Studies last for one full year and a subsequent work term gives practical experience to the candidates. The program is designed to give the candidates enough knowledge to effectively communicate with people involved in the different aspects of the fishing industry.

A. FISHERMEN

No courses offered.

B. PLANT WORKERS

No courses offered.

C. MANAGEMENT

BACHELOR OF FISH MANAGEMENT*

Location:	University Centre of Shippagan (Campus of the University of Moncton) (F)
Prerequisites:	A New Brunswick High School Diploma including French 122, Grade XI English and Mathematics 112 or 122, or the equivalent for a student from another province or country.
Duration:	4 years (3 years at Shippagan; 1 year at Moncton)
Description:	Courses in administration, economics, history of the fishery, general biology, general chemistry, introduction to commercial law, English language (composition and reading), French language (oral and written), descriptive statistics, oceanography, catching methods, fish processing industries, biological models of stock production, socio-economic models of harvesting, computer science, practical training period.
Objectives:	To train fish managers to be capable of filling the following positions: - manager, foreman or department head in processing plants. - civil servant within the departments of Fisheries, Environment or Commerce (provincial, federal, foreign country). - resource person from CIDA in Ottawa in countries undergoing development. - inspection officer (provincial, federal) of quotas and catches. To train graduate students in management of sea products.

*This is the only program of its kind at this level in Eastern Canada.

CERTIFICATE OF FISHERY STUDIES

Location:	University Centre of Shippagan (Campus of University of Moncton) (F)
Prerequisites:	Recognized academic training including courses in science and economics or equivalent professional work experience.
Duration:	1 year (3 terms)
Description:	History of fishing, oceanography, catching methods, methods of processing and making products, biological models of stock production, socio-economic models of exploitation, computer science, practical training period.
Objective:	To explain the basic principles of different subjects inherent in the Maritime fishery.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

No courses offered.

II. NEWFOUNDLAND AND LABRADOR

FISHERIES AND MARINE—RELATED PROGRAMS AND COURSES: DEGREES; MOT CERTIFICATE PREPARATION; DIPLOMAS; CERTIFICATES OF COMPLETION OR ACCOMPLISHMENT (CC) OR VOCATIONAL CERTIFICATES (VC)

	Degrees	MOT Certificate Preparation	Diploma	CC or VC
District Vocational School, Burin	None	Marine Diesel Mechanics	None	Refrigeration Plant Operation (VC) [Pre-Refrigeration Plant Operator Class B Certificate, Government of Newfoundland]
District Vocational School, Carbonear	None	None	None	None
Memorial University of Newfoundland	B. Eng., Naval Architecture; M.Eng. & Ph.D., Ocean Engineering; M.Sc. & Ph.D., Physical Oceanography	None	None	None
Newfoundland & Labrador Institute of Fisheries & Marine Technology	None	*Nautical Science Options*: Able Seaman; Bridgewatchman; CN I Master Inland Waters; CN I First Mate Inland Waters; Command Endorsement; Endorsement in Compass Deviation; Fishing Master Class 1, 2, 3, 4; First Mate Ferry Steamship; MED I, II, III; Master Ferry Steamship; Master Mariner; Master Minor Waters; Master Small Craft; ON I Master Home Trade; ON II First Mate Home Trade; SEN I & II; Watchkeeping Mate *Marine Engineering Options:* Chief Engineer of a Motor-Driven Fishing Vessel; Marine Engineer Class 1, 2, 3, 4; MED I, II, III; Watchkeeping Engineer of a Motor-Driven Fishing Vessel	Diploma of Technology: Electrical Engineering; Electronics; Food Processing; Marine Engineering; Marine Systems Design; Nautical Science (Fishing Technology & Merchant Marine Options); Naval Architecture; Power Engineering	*Two-Year Certificate of Technology:* Small Craft Design (VC); Marine Electronics (VC); Industrial Instrumentation (VC); Radio Communications (VC) *Shorter Programs:* Deckhand (Pre-Sea) Merchant Marine (CC); Fish Processing Machine Maintenance (CC); Introduction to Quality Control in Fish Plants (CC); Marine Cooking & Stewarding (VC); Marine Diesel Mechanics (VC); Marine Electrical Practice (VC); Marine/Industrial Control Electronics (CC); Marine Steelwork (VC); Production Supervision & Enhancement (CC); Quality Assessment & Industrial Sanitation (CC); Radio/Telephone (CC); Refrigeration & Air Conditioning (CC — Refrigeration Engineers Service Society); Refrigeration Plant Operation (VC); Scuba Diving for Fishermen (CC — from Association of Canadian Underwater Councils); Seafood Processing (VC)

II. NEWFOUNDLAND

District Vocational Schools

P.O. Box 379
Burin, Newfoundland
A0E 1E0

Telephone (709) 891-1253

P. O. Box 60
Carbonear, Newfoundland
A0A 1T0

Telephone (709) 576-6139

The District Vocational Schools at Burin and Carbonear, Newfoundland, are among the sixteen Vocational Schools and other institutions which provide the Technical and Vocational Education Program operated by the Department of Education, Government of Newfoundland and Labrador. These programs are designed to prepare students to enter the work force and to provide up-grading and re-training for persons already in the work force. The Burin and Carbonear District Vocational Schools offer the following programs for the fishing and marine-related industries.

A. FISHERMEN

No courses offered.

B. PLANT WORKERS

FISH PLANT WORKER

Location:	District Vocational School, Carbonear (E)
Prerequisites:	Medical certificate + chest X-ray. No particular educational prerequisite is required. Selection will be done through consultation with Principal or Guidance Counsellor of school attended.
Duration:	9 months, including 2 weeks on-site
Description:	Identifying & weighing raw material, identifying & handling fresh & frozen raw material in receiving room, identifying & processing salt fish, pickled fish & shellfish, identifying, handling & freezing raw & packaged products, identifying & shipping finished products, plant machinery, maintaining plant sanitation, introduction to smoking, canning & quality control, operating communications, mathematics, First Aid.
Objective:	To train students for employment in fish processing plants.

C. MANAGEMENT

No courses offered.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

MARINE DIESEL MECHANICS*

Location:	District Vocational School, Burin (E)
Prerequisites:	At least 16 years of age + Grade 10 pass or 18 high school credits including second-year courses in Language, Mathematics & Science (Physics preferred).
Duration:	9 months
Description:	Mechanical tools, materials, and equipment, mechanical skills, routines and practices related to marine engineering, maintenance of diesel engines and power trains, cooling, exhaust and fuel systems, electrical systems, maintenance of lubrication, hydraulic and pneumatic systems, interpretation of trade blueprints, communications, mathematics, science, First Aid.
Objective:	To prepare students for a career in Marine Engineering.

*After completion, the prescribed sea time must be served to qualify for a Certificate of Competency in accordance with rules and regulations of MOT.

REFRIGERATION PLANT OPERATION*

Location:	District Vocation School, Burin (E)
Prerequisites:	At least 16 years of age + grade 10 pass or 18 high school credits including second-year courses in Language, Mathematics & Science (Biology or Chemistry preferred).
Duration:	9 months
Description:	Use and maintain basic refrigeration plant operator's tools, materials and equipment, perform standard operating procedures for refrigeration plants and rectify equipment malfunctions, install piping, valves and fittings used in a basic refrigeration system, interpret trade blueprints and communications, mathematics, science, First Aid.
Objective:	To prepare students for employment in the refrigeration industry & further training during apprenticeship.

*After successful completion, candidates may pursue the Refrigeration Plant Operator's Class B Certification (Department of Labour and Manpower, Government of Newfoundland and Labrador).

MEMORIAL UNIVERSITY OF NEWFOUNDLAND

Centre for Management Development
Faculty of Business Administration
Memorial University
of Newfoundland
St. John's, Newfoundland
A1B 3X5

Telephone (709) 737-7977
Telex 016-4101

Division of Extension
School of Continuing Studies and
Extension
Memorial University
of Newfoundland
St. John's, Newfoundland
A1C 5S7

Telephone (709) 737-7979
Telex 016-4101

Department of Physics
Faculty of Science
Memorial University
of Newfoundland
St. Johns, Newfoundland
A1B 3X7

Telephone (709) 737-8153
Telex 016-4101

Faculty of Engineering and
Applied Science
Memorial University
of Newfoundland
St. John's, Newfoundland
A1B 3X5

Telephone (709) 737-8810
Telex 016-4101

A number of faculties, departments and divisions at Memorial University of Newfoundland (MUN) in St. John's is involved in fisheries and marine-related training programs, as follows:

1. Centre for Management Development

   The Centre for Management Development at the Faculty of Business Administration was established in 1979, to provide a full-service management training centre in Newfoundland and Labrador. It specializes in one- and two-week management skill training programs and can co-ordinate in-house training programs tailored to companies' specific needs.

2. Division of Extension, School of Continuing Studies and Extension

   The Division of Extension, established at MUN (as Extension Service) in 1959, has a mandate to work in communities throughout the Province with particular emphasis on rural areas. Its eight field co-ordinators are strategically located in the Province and available to work with fishermen and managers either on an individual basis or in small groups. The Division of Extension offers seminars and workshops for fishermen, and assistance to fishermen wanting to form co-operatives or local community corporations. It also provides assistance in organizing and admisistering regional conferences and forums dealing with issues of

concern to local area fishermen. In addition, training seminars and courses are available, and in some cases, these courses can be offered through a distance education program.

3. Department of Physics

Two programs of graduate study in Physical Oceanography are available at the Department of Physics: the Master of Science, established in 1979; and the Doctor of Philosophy, established in 1985. These programs form a part of the overall expansion of marine science and engineering studies that has recently been taking place at MUN. Field-oriented and laboratory experiments in acoustics and lagrangian diffusion are being conducted; in addition, offshore research projects of an applied nature have been initiated in the field of Physical Oceanography in areas such as various aspects of the Labrador current system, submarine canyons, ice and iceberg studies. Research ships for fieldwork in Physical Oceanography are available to faculty and students. In addition, the Physical Oceanography division has an excellent inventory of state-of-the-art oceanographic equipment and instruments for research and analysis.

4. Faculty of Engineering and Applied Science

An undergraduate program in Naval Architectural Engineering (B. Eng.) and graduate programs in Ocean Engineering are available at the Faculty of Engineering and Applied Science.

The Naval Architectural Engineering program (formerly the Shipbuilding Engineering program) at MUN is a general program in Naval Architecture and Marine Engineering, established as a degree program in 1979-80. It is a co-operative program, involving eight 14-week academic periods and six 14-week full-time work periods during which the student engineer acquires engineering experience in association with his/her academic engineering studies. The program is accredited by the Canadian Council of Professional Engineers, meaning it and also other engineering programs at MUN meet national standards.

Two programs of graduate study in Ocean Engineering are available at the Faculty of Engineering and Applied Science: the Master of Engineering, established in 1969; and the Doctor of Philosophy, established in 1971. Research may be undertaken in areas such as ocean acoustics, communication and signal processing, marine corrosion, marine and ship hydrodynamics, marine soils and geotechnology, coastal and ocean structures, and other Ocean Engineering areas of specialization. Substantial facilities for Ocean Engineering research at MUN are available, such as a 60 m wave-tow tank, temperature-controlled cold rooms for low temperature research, oceanographic equipment, and modern, well-equipped electronics, fluids and geotechnical and structures laboratories.

A. FISHERMEN

The Division of Extension can, on request, provide short seminars or workshops for fishermen in their own communities which provide motivational and awareness training.

B. PLANT WORKERS

No courses offered.

C. MANAGEMENT

The Centre for Management Development, conjointly with the Newfoundland and Labrador Institute of Fisheries and Marine Technology, has designed and co-ordinated the 'Trawler Officer's Management Course' for Fisheries Products International. To date two of the planned 4 one-week modules have been presented. (See full description on page 57 of this catalogue.)

A number of training seminars, courses and certificate programs can be made available through the Division of Extension. Managers in the fishing industry should contact the Extension worker in their area.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

NAVAL ARCHITECTURAL ENGINEERING (Bachelor of Engineering Degree Program)

Location: MUN, St. John's (E)

Prerequisites: University background in English, Mathematics, Physics, Chemistry + 2 electives with at least a 65% overall average, or equivalent background. Applicants having additional academic credits may be given advanced standing.

Duration: 8 academic terms (14 weeks each) beginning in Fall + 6 full-time work periods (14 weeks each)

Description:

Term 1: Knowledge, Values & Technology, Chemistry & Physics of Engineering Materials I, Mechanics I, Engineering Computations, Calculus I, Vector & Linear Algebra I, Engineering Design I.

Term 2: One elective (humanities subjects), Chemistry & Physics of Engineering II, Mechanics II, Basic Electrical Circuits, Calculus II, Vectors & Linear Algebra II, Engineering Design II.

Work Term 1

Term 3: One elective (humanities, sciences or engineering subjects), Chemistry & Physics of Engineering Materials III, Mechanics III, Electromechanical Energy Conversion, Calculus III, Programming & Numerical Methods, Engineering Economics.

Work Term 2

Term 4: One elective (economics or engineering subjects), Thermodynamics I, Mechanics of Solids I, Fluids I, Probability & Statistics, Ship Statics.

Work Term 3

Term 5: One elective (engineering subjects), Thermodynamics II, Mechanics of Solids II, Mechanical Design I, Calculus IV, Resistance & Propulsion of Ships.

Work Term 4

Term 6: Assessment of Technology, Heat Transfer I, Ship Hull Strength, Electronics for Non-Electrical Engineers, Vibrations, one technical elective (topics in ship structures, Mechanical Design II, or Automatic Control Engineering).

Work Term 5

Term 7: Physical Metallurgy, Ship Dynamics, Shipbuilding Production Management, Marine Engineering Power Plants, Ship Design II, one technical elective (Stress Analysis, Production Technology, Operations Research or Complex Variables & Applications).

NAVAL ARCHITECTURAL ENGINEERING, Continued

Description continued:

Work Term 6

Term 8: Finite Element Analysis, Ship Structural Analysis & Design, Computer Aided Ship Design, Marine Engineering Systems, Ship Design III, one technical elective (Ship Structural Analysis & Design, Marine Transportation System Design, Ship Production Management II, Ship Operations Management, Coastal & Ocean Engineering or Corrosion & Corrosion Control).

Objective: To prepare graduates for employment in the Shipbuilding Industry or any allied occupation, such as ship design, fleet management, offshore operations or government services.

OCEAN ENGINEERING (Master of Engineering* and Doctoral-Level Engineering Programs)

Location: MUN, St. John's (E)

Prerequisites: M.Eng.-level programs: B.Eng. with 'B' grade average, or equivalent qualifications and/or engineering experience acceptable to both the Dean of Graduate Studies and the Faculty of Engineering and Applied Science; Ph.D.-level program: M.Eng., or with provisions, a B.Eng. with demonstrated ability to pursue research at the doctoral level.

Duration: M.Eng. (course-based): Approximately 1 1/2 years; M.Eng. (research-oriented): Approximately 2-2 1/2 years; Ph.D.: Approximately 3-4 years

Description: M.Eng. (course-based): Minimum of 10 graduate-level courses in oceanography, corrosion in aqueous media, advanced statistical analysis, ocean instrumentation and equipment, ice engineering, engineering analysis + other ocean engineering course options + a one-semester project and written report + at least 2-weeks' field experience. M.Eng. (research-oriented): minimum of 4 graduate-level courses in ocean engineering topics + thesis. Ph.D.: graduate-level coursework as recommended by candidate's supervisory committee + comprehensive examination + thesis.

Objective: To provide training in ocean engineering concepts which have applications to areas such as offshore oil & gas development, the fisheries, marine communications & ice environment problems.

*Research-oriented and course-based professional M.Eng. programs are available.

PHYSICAL OCEANOGRAPHY (Master of Science and Doctoral-level Physical Oceanography programs)

Location:	MUN, St. John's (E)
Prerequisites:	M.Sc.-level: B.Sc. in Physics (usually with honours standing) + mathematics background or depending on background and area of specialization, other Baccalaurate degree in science, applied science or mathematics may be accepted; Ph.D.-level: M.Sc. in Physical Oceanography or in other area of specialization, or, with provisions, a B.Sc. with demonstrated ability to pursue research at the doctoral level.
Duration:	At M.Sc. level: approximately 2-3 years; at Ph.D. level: approximately 2-3 years
Description:	At M.Sc. level: a minimum of 5 graduate-level courses in ocean dynamics, waves & tides, turbulence, polar & physical oceanography, special topics & other related oceanography courses + M.Sc. thesis; Ph.D. level, a minimum of 4 graduate-level courses in Physical Oceanography + comprehensive examination + Ph.D. thesis.
Objective:	To train students to understand the physical processes of the ocean. This knowledge is applicable to offshore operations, engineering, fisheries, environmental problems, atmosphere-ocean interactions, ice environment problems & resource management.

Newfoundland and Labrador Institute of Fisheries and Marine Technology
(Formerly the College of Fisheries, Navigation,
Marine Engineering and Electronics)
P.O. Box 4920
St. John's, Newfoundland
A1C 5R3

Telephone (709) 726-5272
Telex 016-4721

The Newfoundland and Labrador Institute of Fisheries and Marine Technology (formerly the College of Fisheries, Navigation, Marine Engineering and Electronics) was established in 1963 to provide trained personnel for the fishing and allied marine industries. Its main campus was relocated to Ridge Road in 1985, in the north end of St. John's. The Department of Extension is housed at the Nagles Hill campus nearby. The new Marine Institute also operates a 54-room student dormitory (male) at Pleasantville in the east end of St. John's, the Offshore Safety Division Training Centre at Little Soldiers Pond, off the Foxtrap Access Road (approximately 20 miles west of St. John's) and marine launching and docking facilities on the south side of St. John's Harbour.

Courses are offered at the Marine Institute to high school graduates, industrial employees and perons in a wide variety of areas, as follows:

3-year Diploma of Technology Programs

- Nautical Science (Fishing Technology and Merchant Marine Options)
- Mechanical Engineering Technology (Power and Marine Engineering Tech nology Options)
- Electrical Engineering Technology
- Electronics Technology
- Food Processing Technology
- Naval Architecture Technology
- Marine Systems Design Technology

2-year Certificate of Technology Programs

- Smallcraft Design
- Marine Electronics
- Industrial Instrumentation
- Radio Officer

1-year Vocational Certificate Programs

- Marine Diesel Mechanics
- Refrigeration Plant Operation
- Marine Steelwork
- Marine Electrical Practice

Ministry of Transport Certification

- Nautical Science and Marine Engineering Options

Vocational Short Courses

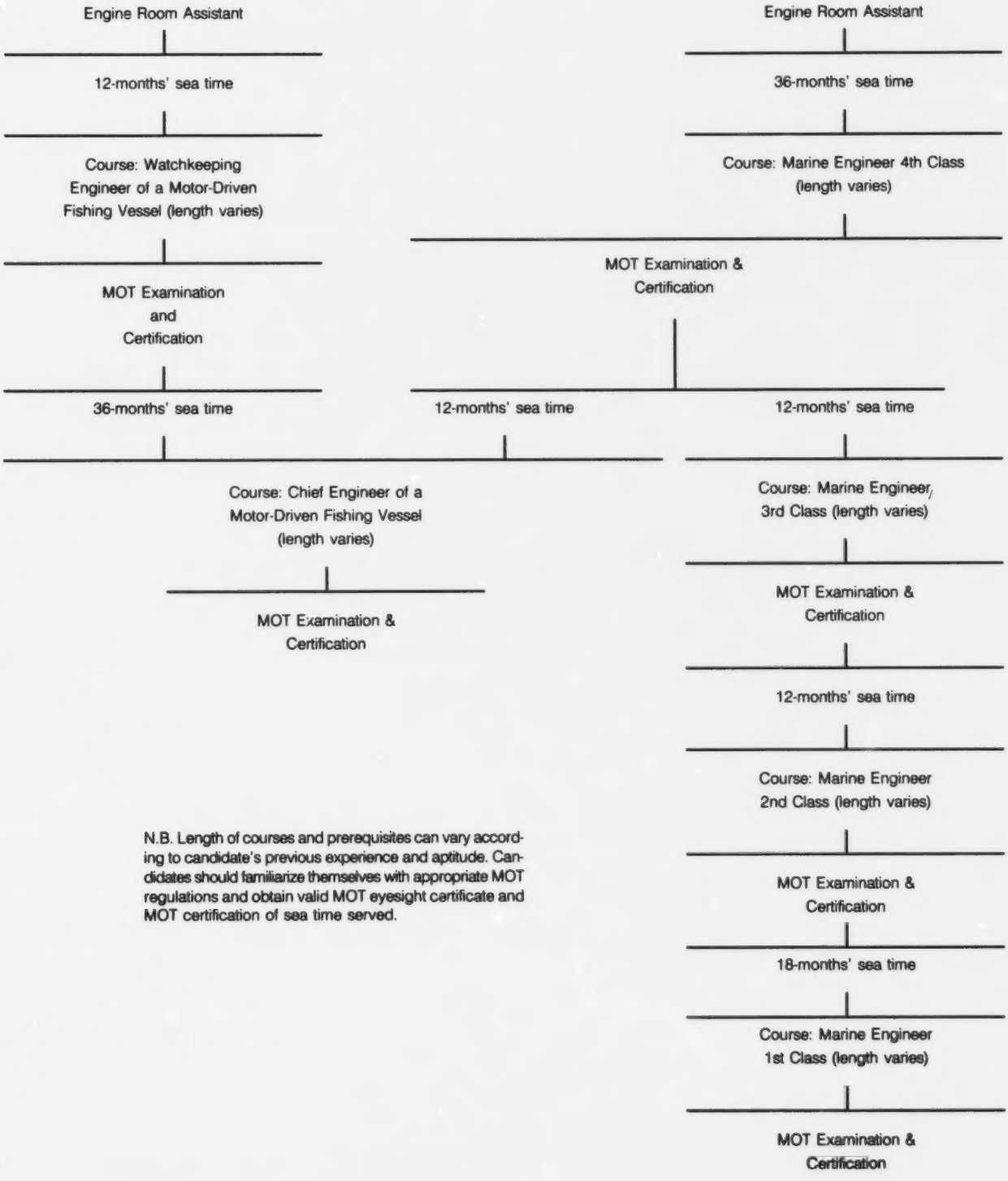
- Marine Cooking and Stewarding
- Marine Stewarding
- Seafood Processing

In addition, the Department of Extension Services plays a major role in providing training throughout the Province of Newfoundland and Labrador. Extension is the Institute 'in the field', and as such offers training programs and technical assistance which may be tailored to meet the specific needs of personnel in the fishing, processing and allied marine industries wherever they may be located. These needs can be met by a variety of extension and continuing education activities, including seminars, workshops, evening classes, short courses, technical bulletins, correspondence courses, courses by teleconferencing, and in-industry training. A fee is normally charged for these programs; however, depending on the length of the program, Canada Employment and Immigration - Manpower- may underwrite part or all of the cost for fishermen, plant personnel and other industrial groups. The courses given depend upon the extent of the demand and resources available.

As part of the new Marine Institute complex, a flume tank costing approximately $7 million, is being constructed and will be the largest and most technologically advanced of its kind in the world. The flume tank will allow research and training to be carried out in the area of fishing gear technology. The Marine Institute currently does carry out some applied research and development, particularly in the area of seafood processing, and plans to broaden its R and D component in this and other areas at its new location.

NEWFOUNDLAND AND LABRADOR INSTITUTE OF FISHERIES AND MARINE TECHNOLOGY

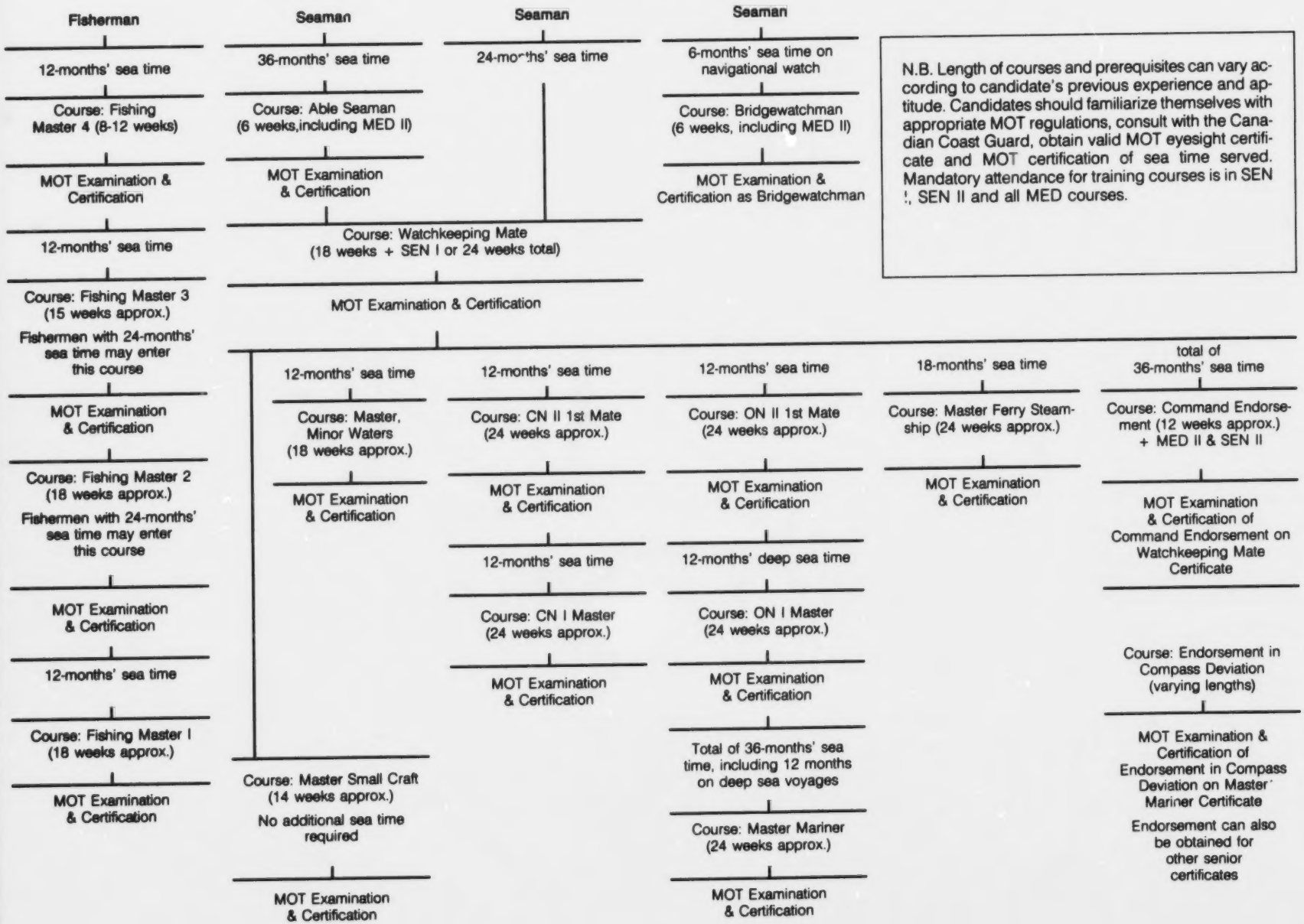
MARINE ENGINEERING


Engine Room Assistant
12-months' sea time
Course: Watchkeeping Engineer of a Motor-Driven Fishing Vessel (length varies)
MOT Examination and Certification
36-months' sea time
Course: Chief Engineer of a Motor-Driven Fishing Vessel (length varies)
MOT Examination & Certification
Engine Room Assistant
36-months' sea time
Course: Marine Engineer 4th Class (length varies)
MOT Examination & Certification
12-months' sea time
Course: Marine Engineer, 3rd Class (length varies)
MOT Examination & Certification
12-months' sea time
Course: Marine Engineer 2nd Class (length varies)
MOT Examination & Certification
18-months' sea time
Course: Marine Engineer 1st Class (length varies)
MOT Examination & Certification

N.B. Length of courses and prerequisites can vary according to candidate's previous experience and aptitude. Candidates should familiarize themselves with appropriate MOT regulations and obtain valid MOT eyesight certificate and MOT certification of sea time served.

NEWFOUNDLAND AND LABRADOR INSTITUTE OF FISHERIES AND MARINE TECHNOLOGY

NAUTICAL SCIENCE


Fisherman
12-months' sea time
Course: Fishing Master 4 (8-12 weeks)
MOT Examination & Certification
12-months' sea time
Course: Fishing Master 3 (15 weeks approx.)
Fishermen with 24-months' sea time may enter this course
MOT Examination & Certification
Course: Fishing Master 2 (18 weeks approx.)
Fishermen with 24-months' sea time may enter this course
MOT Examination & Certification
12-months' sea time
Course: Fishing Master I (18 weeks approx.)
MOT Examination & Certification
Seaman
36-months' sea time
Course: Able Seaman (6 weeks,including MED II)
MOT Examination & Certification
Seaman
24-months' sea time
Course: Watchkeeping Mate (18 weeks + SEN I or 24 weeks total)
MOT Examination & Certification
12-months' sea time
Course: Master, Minor Waters (18 weeks approx.)
MOT Examination & Certification
Course: Master Small Craft (14 weeks approx.)
No additional sea time required
MOT Examination & Certification
12-months' sea time
Course: CN II 1st Mate (24 weeks approx.)
MOT Examination & Certification
12-months' sea time
Course: CN I Master (24 weeks approx.)
MOT Examination & Certification
Seaman
6-months' sea time on navigational watch
Course: Bridgewatchman (6 weeks, including MED II)
MOT Examination & Certification as Bridgewatchman
12-months' sea time
Course: ON II 1st Mate (24 weeks approx.)
MOT Examination & Certification
12-months' deep sea time
Course: ON I Master (24 weeks approx.)
MOT Examination & Certification
Total of 36-months' sea time, including 12 months on deep sea voyages
Course: Master Mariner (24 weeks approx.)
MOT Examination & Certification
18-months' sea time
Course: Master Ferry Steamship (24 weeks approx.)
MOT Examination & Certification
total of 36-months' sea time
Course: Command Endorsement (12 weeks approx.) + MED II & SEN II
MOT Examination & Certification of Command Endorsement on Watchkeeping Mate Certificate
Course: Endorsement in Compass Deviation (varying lengths)
MOT Examination & Certification of Endorsement in Compass Deviation on Master Mariner Certificate
Endorsement can also be obtained for other senior certificates

N.B. Length of courses and prerequisites can vary according to candidate's previous experience and aptitude. Candidates should familiarize themselves with appropriate MOT regulations, consult with the Canadian Coast Guard, obtain valid MOT eyesight certificate and MOT certification of sea time served. Mandatory attendance for training courses is in SEN I, SEN II and all MED courses.

A. FISHERMEN

ADVANCED COD TRAP CONSTRUCTION

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Competence in assembly and repair of traditional cod trap + intention to construct Japanese or Newfoundland trap or modify existing trap.
Duration:	6 weeks
Description:	Construction and modification of cod traps.
Objective:	To instruct practicing inshore fishermen in methods of constructing Japanese- or Newfoundland-type cod traps or modifying existing cod traps.

ARC WELDING AND GAS CUTTING FOR FISHERMEN

Location:	Marine Institute, St. John's or Off-campus (E)
Duration:	6 weeks
Description:	Fundamentals of welding for practical application by fishermen.
Objective:	To train fishermen in the fundamentals of welding for practical application to their vessels and equipment.

BASIC NAVIGATION

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Be a fisherman or seaman interested in acquiring knowledge of coastwise navigation.
Duration:	6 weeks
Description:	Chartwork, introduction to use of electronic navigational aids, communications, seamanship, First Aid, radio-telephone, fishing gear, fish detection.
Objective:	To enable fishermen to extend their area of operation to areas with which they are unfamiliar; and to provide pre-certificate training for merchant seamen and fishermen interested in obtaining MOT certificates of competency at a later date.

BUSINESS PRACTICES FOR FISHERMEN

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Completion of 'Record-Keeping for Fishermen', or equivalent knowledge or experience.
Duration:	2 weeks
Description:	Records, Income Tax, loans, bounties and subsidies, insurance, workmen's compensation, types of business organizations, managing the fishing operation as a business.
Objective:	To familiarize fishermen with all financial aspects of a fishing operation and to assist them in treating their fishing operations as a business.

CHIEF ENGINEER OF A MOTOR-DRIVEN FISHING VESSEL

Location:	Marine Institute, St. John's (E)
Prerequisites:	Not less than 21 years of age + 36-months' sea service after obtaining a Watchkeeping Engineer certificate or 12-months' sea service after obtaining a 4th Class certificate.
Duration:	As required to successfully complete the MOT examinations
Description:	Courses as required to pass MOT examinations.
Objective:	To prepare a candidate for the MOT examinations for Chief Engineer of a Motor-Driven Fishing Vessel certificate.

COASTAL NAVIGATION AND PILOTAGE*

Location:	Marine Institute, St. John's or Off-campus (E)
Duration:	40 hours
Description:	Basic chartwork, navigational aids, seamanship, rules of the road, meteorology, lifesaving appliances, compass work.
Objective:	To increase participants' knowledge of the operation of small craft.

*The Off-campus course is referred to as 'Coastal Navigation and Pilotage'; the St. John's course is referred to as 'Coastal Navigation and Seamanship'.

DANISH SEINING

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Engaged or about to be engaged in Danish seining.
Duration:	4 weeks
Description:	Design, construction, rigging, maintenance and repair of Danish seines and ancillary equipment.
Objective:	To train fishermen engaged in Danish seining in the upkeep and repair of their equipment.

FIBREGLASS BOAT REPAIR

Location:	Marine Institute, St. John's or Off-campus (E)
Duration:	6-8 weeks
Description:	Use of fibreglass materials, skills in and safety precautions for use of materials to build up fibreglass laminate, fibreglass repair on student vessels.
Objective:	To introduce inshore fishermen to the use of fibreglass materials in the repair of inshore fishing vessels.

FISH FINDING WITH SONAR

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Must be practicing fisherman on sonar-equipped vessel or on vessel in the process of being equipped with sonar set.
Duration:	1 week
Description:	How sonar works, description and types of echosounding and sonar equipment, control settings, understanding the display using the sonar to set the seine.
Objective:	To provide instruction in the efficient use of sonar equipment as a fish finding and navigation aid.

FISHING GEAR AND METHODS

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Physically fit + previous experience, or prospects of employment, on a commercial fishing vessel.
Duration:	10 weeks
Description:	Gear construction, fish detection, nautical knowledge, First Aid.
Objective:	To provide training in construction and operation of inshore and near water fishing gear and related equipment.

FISHING MASTER CLASS IV*

Location:	Marine Institute, St. John's or Off-campus** (E)
Prerequisites:	12-months' sea time on vessel(s) of at least 5 tons, certified by MOT + must pass an eyesight test.
Duration:	8 weeks, Off-campus; 12 weeks, St. John's
Description:	Navigating instruments, chartwork and pilotage, navigation safety, general seamanship.
Objective:	To prepare fishermen for Fishing Master Class IV MOT certificate examinations.

*Candidates must also complete MED I and/or II and the R/T restricted license.

**Off-campus course specially designed for longliner and trawler operators.

FISHING MASTER CLASS III

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Completion of Fishing Master Class IV certificate program + 24-months' sea service.
Duration:	Approximately 15 weeks
Description:	Communications, navigating instruments, chartwork and pilotage, navigation safety, general ship knowledge, general seamanship, MED II.
Objective:	To prepare fishermen for Fishing Master Class III MOT certificate examinations.

FISHING MASTER CLASS II

Location:	Marine Institute, St. John's (E)
Prerequisites:	24-months' sea service.
Duration:	Approximately 18 weeks
Description:	Communications, navigating instruments, chartwork and pilotage, navigation safety, meteorology, ship management, general ship knowledge, general seamanship, mathematics, SEN I.
Objective:	To prepare fishermen for Fishing Master Class II MOT certificate examinations.

FISHING MASTER CLASS I

Location:	Marine Institute, St. John's (E)
Prerequisites:	3-years' sea service.
Duration:	Approximately 18 weeks
Description:	Communications, chartwork and pilotage, navigation, navigation safety, meteorology, general ship knowledge, general seamanship, SEN II.
Objective:	To prepare fishermen for Fishing Master Class I MOT certificate examinations.

FISHING VESSEL OUTFITTING

Location:	Marine Institute, St. John's or Off-campus (E)
Duration:	8 - 12 weeks
Description:	Machinery, electrical & piping systems. Will require at least one vessel to be outfitted during course.
Objective:	To provide practical guidelines for design and installation of machinery systems in fishing vessels up to 15 meters.

GROUNDFISH TRAWLING*

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Must be an experienced or practicing inshore dragger fisherman or fisherman with prospects of diversifying into inshore dragging.
Duration:	4 weeks
Description:	Assembly, rigging, operation and repair of groundfish trawls, and ancilliary equipment including doors, gallows, hoisting devices.
Objective:	To instruct inshore dragger fishermen in the construction & repairs of trawls in current use.

*The Off-campus course is referred to as 'Groundfish Trawling'; the St. John's course is referred to as 'Groundfish Trawl Construction and Repair'.

INSHORE FISHING GEAR*

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Must be a practicing fisherman.
Duration:	4 or 6 weeks
Description:	Construction, operation, maintenance and repair of inshore fishing gear such as nets, traps, seines and longlines.
Objective:	To instruct inshore fishermen in the efficient operation and repair of inshore fishing gear with emphasis on practical net mending and associated knots and splices.

*The Off-campus course (4 weeks) is referred to as 'Inshore Fishing Gear Operation'; the St. John's course (6 weeks) is referred to as 'Inshore Fishing Gear'.

INTRODUCTION TO BASIC INSHORE FISHING GEAR

Location:	Marine Institute, St. John's or Off-campus (E)
Duration:	21 hours
Description:	Basic net mending, characteristics of fishing gear materials, operation and repair of cod traps & herring traps, longlines and handlines, gill nets, salmon nets and herring nets, lobster pots, and gear handling equipment suitable for use on small fishing vessels.
Objective:	To instruct students in the efficient operation & repair of inshore fishing gear, with emphasis on practical net mending & associated knots & splices.

LONGLINER (PRE-SEA)

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Must be employed, or have prospects of employment, on a longliner or similar fishing vessel.
Duration:	6 weeks
Description:	Operation, assembly, maintenance and repair of gill nets, longlines, crab pots and automatic reels, preparation of simple meals, maintenance of engine, deck machinery and hull, fish handling.
Objective:	To train fishermen or prospective fishermen for employment on longliners.

LONGLINER OPERATIONS

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Must be a practicing longliner fisherman.
Duration:	4 weeks
Description:	Diversification: conversion of longliners to trawling for shrimp & groundfish, modern gear-handling equipment, scallop-dragging, Danish- and purse-seining, winter lay-up of fishing vessels, introduction to operation, assembly and repair of groundfish and shrimp trawls, seamanship, introduction to basic chartwork, fish detection equipment & navigational aids, methods of handling, storing and discharge of fish, vessel construction, one-week safety course.
Objective:	To assist practicing longliner fishermen in the efficient operation of their vessels.

MARINE EMERGENCY DUTIES I (MED I)*

Location:	Marine Institute, Offshore Safety Division Training Centre or Off-campus (E)
Prerequisites:	Must have medical certificate, valid within past year.
Duration:	5 days
Description:	Lifesaving appliances, firefighting, rescue and survival.
Objective:	To prepare students for MED I, MOT examinations.

*Requisite for minor certificates. Off-campus, this course will be offered automatically to those enrolled in the Fishing Master IV certificate program, but it is also available as a separate course for inshore fishermen & others.

MARINE EMERGENCY DUTIES II & III (See course descriptions on page 66.)

MARINE ENGINE REPAIR AND MAINTENANCE

Location:	Marine Institute, Off-campus (E)
Duration:	4 weeks
Description:	Basics of engine repairs and assembly, electrical, fuel, lubrication and cooling systems, trouble-shooting the engine and the remedies.
Objective:	To make the fisherman more proficient in maintenance & repair of diesel or gasoline engines so as to avoid costly breakdowns during the fishing season.

MIDWATER TRAWL ASSEMBLY

Location:	Marine Institute, St. John's (E)
Prerequisites:	Must be a practicing trawler fisherman with knowledge of elementary net assembly & repair.
Duration:	3 weeks
Description:	Construction of midwater trawl, setting up support ropes, attaching floats and ground rope, building cod end with expansion ropes.
Objective:	To instruct practicing fishermen in construction of midwater trawls.

NAVIGATION (BASIC) FOR FISHERMEN

Location:	Marine Institute, St. John's (E)
Duration:	4 weeks
Description:	Compass, chartwork, rules of the road, introduction to navigational aids.
Objective:	To train inshore, small boat fishermen in the basics of navigation.

NAVIGATIONAL AIDS FOR FISHERMEN

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisite	Must have completed 'Basic Navigation', or equivalent.
Duration:	2 weeks
Description:	Principles, operation and maintenance of major navigational aids found on coastal fishing vessels.
Objective:	To familiarize fishermen with use of navigational aids.

NETS AND GEAR REPAIR AND MAINTENANCE

Location:	Marine Institute, St. John's or Off-campus (E)
Duration:	4 weeks
Description:	Training in construction, maintenance & repair of nets & gear, including gill nets, longlines, traps & seines. Instruction in handling twine, knots & splices, including cable splicing.
Objective:	To permit fishermen to acquire skills necessary for construction, maintenance & repair of their nets & gear.

NET-MAKERS (MANUAL)

Location:	Marine Institute, St. John's or Off-campus (E)
Duration:	12 weeks
Description:	Safety, firefighting & First Aid, net braiding, cutting & rigging, net specifications.
Objective:	To impart skills necessary for all aspects of net construction & to prepare students to cope with on-the-job emergency situations.

OCEAN AND CELESTIAL NAVIGATION

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Completion of 'Coastal Navigation and Pilotage', or good basic knowledge of coastal navigation, including use of charts and magnetic compasses.
Duration:	40 hours, evenings
Description:	Nautical tables, sailings, compass error, position finding by observation of celestial bodies, marine meteorology, climatological routing of vessels.
Objective:	For small vessel owners to expand knowledge and ability to venture further asea.

OUTBOARD MOTOR REPAIR AND MAINTENANCE

Location:	Marine Institute, St. John's or Off-campus (E)
Duration:	4 weeks
Description:	Familiarization with outboard motors, fuel and electrical systems, troubleshooting, repairs, assembly and maintenance procedures.
Objective:	To improve skill level of fishermen in all aspects of operation, maintenance, repair and general care of outboard engines.

RADAR AND OTHER ELECTRONIC NAVIGATIONAL AIDS*

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	The St. John's course prerequisite is completion of 'Coastal Navigation and Seamanship'.
Duration:	40 hours, evenings (St. John's); 36 hours (Off-campus)
Description:	Operation of electronic navigating instruments such as Radar, Loran C, Decca and Echo Sounder.
Objective:	To instruct fishermen in use of electronic navigational aids.

*Off-campus course is referred to by this title; St. John's course is referred to as 'Radar and Electronic Navigation Aids'.

RECORD-KEEPING AND TAXATION FOR FISHERMEN

Location:	Marine Institute, St. John's or Off-campus (E)
Duration:	2 or 3 weeks
Description:	Business arithmetic, bookkeeping terminology, inventory of capital cost and fishing equipment items, record of income and expenses, introduction to Income Tax requirements.
Objective:	To teach fundamental principles of bookkeeping so that fishermen can establish, maintain and summarize an adequate record system.

*The Off-campus course (3 weeks) is referred to by this title; the St. John's course (2 weeks) is referred to as 'Record-Keeping for Fishermen'.

RESTRICTED RADIO/TELEPHONE OPERATOR'S CERTIFICATE (MARITIME)*

Location:	Marine Institute, St. John's (E)
Duration:	Approximately 15 hours
Description:	Regulations, priorities, transmitting techniques, frequencies and logbooks.
Objective:	To enable candidates to acquire the proficiency to pass the Department of Communications examination for Restricted Radio/Telephone Operator's Certificate (Maritime).

*Requisite for all Certificates of Competency.

SCUBA DIVING FOR FISHERMEN

Location:	Marine Institute, St. John's or Off-campus (E)
Duration:	2 weeks
Description:	Theory and practice of underwater Scuba Diving.
Objective:	To prepare fishermen for examinations of the Level I Diver Certification, Association of Canadian Underwater Councils.

SHRIMP TRAWLING

Location:	Marine Institute, St. John's or Off-campus (E)
Duration:	4 weeks
Description:	Design, construction, operation & repair of shrimp trawls and ancillary equipment.
Objective:	To enable practicing longliner fishermen to convert to shrimp trawling operations.

SMALL ENGINE REPAIR AND MAINTENANCE (GASOLINE)

Location:	Marine Institute, St. John's or Off-campus (E)
Duration:	40 hours, evenings
Description:	Familiarization with motor, fuel & electrical systems, trouble-shooting, motor repair & assembly, regular maintenance procedures.
Objective:	To improve skill levels in all aspects of operation, maintenance, repair & general care of gas engines.

TRAWLER DECKHAND (PRE-SEA)

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Physically fit + have prospect of employment in deep sea fishing industry.
Duration:	6 weeks
Description:	Net repair and assembly, knots and splices, basic seamanship, fish handling, First Aid.
Objective:	To train efficient deckhands for deep sea fishing vessels.

WATCHKEEPING ENGINEER OF A MOTOR-DRIVEN FISHING VESSEL

Location:	Marine Institute, St. John's (E)
Prerequisites:	At least 18 years old + 12-months' sea service.
Duration:	As required to successfully complete the MOT examinations.
Description:	Courses as required to pass MOT examinations.
Objective:	To prepare a candidate for the MOT examinations for Watchkeeping Engineer of a Motor-Driven Fishing Vessel certificate.

WOOD BOAT REPAIR*

Location:	Marine Institute, St. John's or Off-campus (E)
Duration:	4-8 weeks
Description:	Techniques of replacement of damaged or decayed frames, stem, stern knee, deadwood and planking on selected boats. Elementary small boat technology dealing with construction methods, laying procedures, timber technology, fastening, glues and plant steam fillers.
Objective:	To increase small boat owners' abilities to carry out the repair or replacement of structural members on wood boats.

*Course for practicing fishermen who are small boat owners.

WOOD SHIPBUILDING FOR FISHERMEN

Location:	Marine Institute, St. John's or Off-campus (E)
Duration:	8-12 weeks
Description:	Basic boatbuilding skills are developed through construction of boats 25 feet in length.
Objective:	To train students who are, or will be, engaged in the inshore fishery in the construction of small wooden vessels.

NOTE:

In addition to the courses listed above, the Marine Institute will also provide short workshops/ seminars of 1-5 days duration on topics suggested below (depending on funds, resources & demand):

BUSINESS SKILLS FOR FISHERMEN
FISH FINDING WITH SONAR
FISHING BUSINESS ORGANIZATION AND OPERATIONS
HYDRAULICS FOR FISHERMEN
ON-BOARD HANDLING FOR QUALITY MAINTENANCE FOR FISHERMEN
SPECIFIC FISHING TECHNIQUES
SPECIFIC GEAR HANDLING, MAINTENANCE AND REPAIR
TAXATION FOR FISHERMEN
VESSEL, ENGINE AND EQUIPMENT - WINTER LAY-UP

B. PLANT WORKERS

CRAB HANDLING AND PROCESSING

Location:	Marine Institute, St. John's (E)
Prerequisites:	Recommendation by employer.
Duration:	3 weeks, Fall or Spring
Description:	Processing of snow crab from harvest to finished, frozen, canned and secondary products.
Objective:	To increase skills & productivity of crab processors by providing training in most productive methods for obtaining maximum yield and high quality products.

FINISHED PRODUCT GRADING AND PACKAGING

Location:	Marine Institute, St. John's (E)
Prerequisites:	Grade XI or Grade X + one year industrial experience + recommendation of an employer + full sensory acuity.
Duration:	3 weeks
Description:	Principles of quality assessment, sampling theory & practice, product specifications & grading principles, record-keeping, assessment of packing and packaging.
Objective:	To train final product graders to use Federal Government Grade Standards and Industrial Specifications for groundfish products.

FISH FILLETING

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Recommendation by employer.
Duration:	15 days
Description:	Filleting cod & flatfish, fillet trimming, boning, dipping & icing.
Objective:	To train students to handle, fillet, skin, trim, de-bone and ice cod and flatfish.

FISH OR SHELLFISH PLANT START-UP TRAINING

Location:	Marine Institute, Off-campus (E)
Duration:	2-3 weeks, according to requirements
Objective:	To provide new or re-activated plants with the skilled personnel to run an effective operation.

FISH PROCESSING MACHINE MAINTENANCE

Location:	Marine Institute, St. John's (E)
Prerequisites:	Demonstrated mechanical ability + recommendation by employer.
Duration:	3 weeks, Winter
Description:	Baader 184, 188, 189, 417, 421 fish processing machines will be stripped down, cleaned, defective parts replaced, rebuilt, adjusted and operated. A series of 3-week programs given according to machine type.
Objective:	To train personnel in the correct setting, operation & maintenance of the Baader 184, 188, 189, 417 & 421 machines.
Certificate:	Certificate of Completion awarded.

GROUNDFISH HANDLING AND PROCESSING

Location:	Marine Institute, St. John's (E)
Prerequisites:	Should have previous experience in fish industry + recommendation by an employer.
Duration:	3 weeks, Fall or Winter
Description:	Groundfish processing from catching through to fresh and frozen finished products.
Objective:	To improve the handling, preparation, packaging & freezing skills & knowledge of persons employed in the fresh & frozen groundfish industry.

HAND SPLITTING AND SALTING

Location:	Marine Institute, Off-campus (E)
Duration:	2-3 weeks
Description:	Skill training in splitting and salting of fish.
Objective:	To train students to split and salt fish.

HEAT PROCESSING OPERATIONS AND CONTAINER CLOSURE EVALUATION*

Location:	Marine Institute, Off-campus (E)
Prerequisites:	Recommendation by employer + experience/education in canning and bottling.
Duration:	One week
Description:	General microbiology, product preparation, thermal processing, retort & cooker operations, documentation & records, container integrity, Federal & Provincial requirements.
Objective:	To upgrade persons already employed in the processing of low-acid foods & meat products in the areas of thermal processing & container closure operations.

*National Certificate Program sponsored by the Fisheries Council of Canada, Meat Packers Association and Grocery Product Manufacturing Association. Recommended by the Department of Fisheries and Oceans Canada.

INDUSTRIAL CANNING AND BOTTLING*

Location:	Marine Institute, St. John's (E)
Prerequisites:	Recommendation by an employer.
Duration:	3 weeks
Description:	Care of raw material to finished product labelling. Emphasis on product safety and quality control.
Objective:	To train students in the theory & practice of producing canned products from Newfoundland-produced raw materials.

*Course for key employees of bottling and canning operations.

INTRODUCTION TO QUALITY CONTROL IN FISH PLANTS

Location:	Marine Institute, St. John's (E)
Prerequisites:	Grade X, or equivalent + full sensory acuity + recommendation by an employer.
Duration:	3 weeks
Description:	Introduction to sanitation and hygiene, care of the material, sampling procedures, raw material grading principles, fillet grading and sensory evaluation, finished product grading and weight control.
Objective:	To introduce new quality control personnel to the nature and scope of fish plant quality control.

PELAGIC FISH HANDLING AND PROCESSING

Location:	Marine Institute, St. John's (E)
Prerequisites:	Recommendation by an employer.
Duration:	3 weeks, Fall or Winter
Description:	Processing of caplin, herring, mackerel, salmon and squid from catching to frozen, smoked, pickled or canned finished products.
Objective:	To train the student in the theory and practice of pelagic fish processing.

POINT-OF-SALE GRADING OF COD FOR SALTING

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Grade 8, or equivalent + ability to split + full colour vision + full senses of smell and touch + recommendation by a senior company official.
Duration:	3 weeks
Objective:	To train potential graders in efficient and effective grading of the landed quality of codfish for salting.

POINT-OF-SALE GRADING OF GROUNDFISH

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Combination of high school education + filleting experience + no known sensory defects + must be recommended by an employer.
Duration:	4 weeks
Description:	Sample and determine grades of landed groundfish at the point of sale, calculate percentages, maintain appropriate records, examine vessels, landing sites & vehicles for sanitation standards, maintain relationships with fishermen and fish buyers. The course includes 10-days' practical training.
Objective:	To train potential graders in efficient and effective grading of the landed quality of groundfish.

QUALITY CONTROL TECHNICIAN CERTIFICATE - Proposed 1986

Location:	Marine Institute, St. John's (E)
Prerequisites:	Successful completion of Primary-level Food Technology program, or equivalent.
Duration:	I year
Objective:	To provide the potential Quality Control Technician with expertise in statistical, chemical, microbiological, objective and organoleptic quality measurement and related subjects.

SALT FISH AND STOCK FISH PRODUCTION

Location:	Marine Institute, St. John's (E)
Prerequisites:	Industrial experience + recommendation by an employer.
Duration:	3 weeks, Fall or Winter
Description:	Processing procedures of light and heavy cured salt fish and stock fish, from catching to finished product and secondary product.
Objective:	To train students in the methods of high quality salt fish production.

SKILL TRAINING PROGRAMS*

Location:	Marine Institute Off-campus (E)
Prerequisites:	Recommendation by an employer.
Duration:	1, 2 or 3 weeks
Description:	Programs for crab plant workers, filleting and freezing plant workers, salt fish plant workers.

*Available on request by processors.

SMOKING TECHNIQUES

Location:	Marine Institute, St. John's (E)
Prerequisites:	Recommendation by an employer.
Duration:	2 weeks, Fall and Spring
Description:	Smoking of various raw materials from catching through to packed, finished and secondary products.

STRAPPING MACHINE MAINTENANCE, SIGNODE MCB 710

Location:	Marine Institute, St. John's (E)
Prerequisites:	Demonstrated mechanical ability + recommendation by an employer.
Duration:	1 week, Fall or Winter
Description:	Dismantling & cleaning strapping machines, replacing, rebuilding, adjusting & operating defective parts, trouble-shooting.
Objective:	To train personnel in the correct setting, operation and maintenance of the Signode MCB 710 Strapping Machine.

NOTE:

In addition to the courses listed above, the Marine Institute will also provide short workshops/ seminars of 1-5 days duration on topics suggested below (depending on demand, funds and resources):

PROBLEM-SOLVING FOR FISH PLANT PERSONNEL
SANITATION AND HYGIENE FOR PLANT WORKERS
SPECIFIC PROCESSING TECHNIQUES (ROE, SQUID & OTHER SPECIES)

C. MANAGEMENT

CERTIFICATE IN SEAFOOD PROCESSING

Location:	Marine Institute, St. John's (E)
Duration:	6 months, Fall or Winter
Description:	Two modules of 3 months each - (1) 'Fundamentals of Seafood Processing': Quality control, sanitation & hygiene, fish handling, foremanship, communication skills, mathematics. (2) 'Practical Seafood Processing': Processing technology, incentive systems, industrial relations, industrial seminars/First Aid and safety.
Objective:	Designed to train persons for supervisory positions in processing plants.
Certificate:	Vocational Certificate in Seafood Processing.

FOOD TECHNOLOGY (MARINE PRODUCTS)*

Location:	Marine Institute, St. John's (E)
Prerequisites:	Senior High School Graduation Certificate with passes in Mathematics, Language and Level III Sciences together averaging 60% or a Grade XI Public Examinations Matriculation Certificate with an average of 60% or any certificate of attainment deemed by Committee on Admissions to be equivalent.
Duration:	3 years, beginning September
Description:	Primary, Intermediate and Advanced Programs include studies in communication skills, mathematics, physics, chemistry, biology, computer programming, processing technology, statistics, electrotechnology, food engineering, economics, microbiology, industrial plant sanitation, statistical quality control, food chemistry, food ingredient technology, management, instrumentation, processing biology.
Objective:	To train leaders for the Food Processing Sector (e.g., quality control supervisors, production supervisors, product development technologists, food product inspectors and food laboratory technologists), who have the insight and the technical and management skills to cope with rapid change and with problems in the industry.

*Successful completion of program leads to a Diploma in Food Technology (Marine Products).

PLANT SANITATION MANAGEMENT CERTIFICATE - Proposed 1987

Location:	Marine Institute, St. John's (E)
Prerequisites:	Successful completion of Primary-level Food Technology program, or equivalent.
Duration:	1 year
Objective:	To provide the potential plant sanitation managers with expertise in cleaning systems, sanitation methods, pest control, sanitation management and related subjects.

PRODUCTION SUPERVISION AND ENHANCEMENT

Location:	Marine Institute, St. John's (E)
Prerequisites:	Grade X, or equivalent + an employer's recommendation.
Duration:	6 weeks, Fall or Winter
Description:	Industrial relations, union agreements, scheduling, job costing, productivity, work measurement, incentive systems, efficiency analysis, work simplification.
Objective:	To improve first line supervisors' or potential first line supervisors' awareness of factors affecting production.

QUALITY ASSESSMENT AND INDUSTRIAL SANITATION

Location:	Marine Institute, St. John's (E)
Prerequisites:	Recommendation by an employer.
Duration:	6 weeks, Fall or Winter
Description:	For potential Quality Control or Plant Sanitation Supervisor: practical and theoretical aspects of quality control and plant sanitation.
Objective:	To train students in the quality assessment of marine products and their component parts and in industrial sanitation.

QUALITY CONTROL FOR FOOD PROCESSORS

Location:	Marine Institute, St. John's or Off-campus (E)
Duration:	36 hours
Description:	Structure and responsibilities of quality control, quality assurance, measurement of attributes and variables, sampling methods, taste panel techniques, trouble-shooting, costs and forms.

SANITATION MANAGEMENT*

Location:	Marine Institute, St. John's or Off-campus (E)
Duration:	36 hours
Description:	A professional course; and students successful in final examinations will be awarded a certificate of completion.

*Course for supervisory personnel in food processing plant industry.

SEAFOOD PLANT MANAGERS' CERTIFICATE - Proposed 1986 (Conjoint with Memorial University Faculty of Business Administration)

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Current or potential plant manager recommended by industry.
Duration:	Variable according to credit standing of students
Objective:	To provide the up-to-date technical, administrative and financial knowledge and skills required by the modern plant manager.

SEAFOOD PLANT PRODUCTION MANAGEMENT CERTIFICATE - Proposed 1986 (Conjoint with Memorial University Faculty of Business Administration)

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Current or potential plant production manager recommended by industry.
Duration:	Variable according to credit standing of students
Objective:	To provide the up-to-date technical, supervisory and financial knowledge and skills required by today's production manager.

SUPERVISORY SKILLS FOR FISH PLANT PERSONNEL

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Minimum grade 8 education + work experience + recommendation by an employer.
Duration:	2 weeks
Description:	For potential and first line supervisors. Principles of supervision, communications, decision making, productivity measurement, planning and scheduling, costing, quality control, industrial relations and union contracts.
Objective:	To train potential & first line supervisors in the principles of supervision.

TRAWLER OFFICERS MANAGEMENT (Conjoint with Memorial University's Faculty of Business Administration)

Location:	Marine Institute and Memorial University of Newfoundland, St. John's (E)
Prerequisites:	Must be a practicing Trawler Master, Mate or Manager.
Duration:	20 days
Description:	For Trawler Masters, Mates and Managers. Topics include role of the manager, industrial relations at sea, communications methods, budgeting and accounting, fisheries resource management, ship management, marine insurance, trawler design, construction and maintenance, trawler safety, law and regulations.
Objective:	To increase participants' understanding of the management function and its relationship to processing, marketing as well as harvesting procedures so as to increase the overall effectiveness of the fishing vessel unit.

NOTE:

In addition to the courses listed above, the Marine Institute will also provide short workshops/seminars of 1-5 days duration on topics suggested below (depending on demand, funds and resources):

COMPUTER APPLICATIONS FOR SENIOR PERSONNEL (SEAFOOD INDUSTRY)

EFFECTIVE SUPERVISION FOR FIRST LINE SUPERVISORS

MANAGEMENT SKILLS FOR FISH PLANT SUPERVISORS

PRODUCTIVITY ENHANCEMENT FOR PLANT OWNERS AND SUPERVISORS IN THE SEAFOOD INDUSTRY

QUALITY CONTROL CONCEPTS FOR SUPERVISORS IN THE SEAFOOD INDUSTRY

SEAFOOD PROCESSING COST ANALYSIS AND CONTROL

SPECIFIC PROCESSING TECHNIQUES

D. FISHERIES AND MARINE-RELATED INDUSTRIES

ABLE SEAMAN

Location:	Marine Institute, St. John's (E)
Prerequisites:	Not less than 18 years of age + physically fit + valid MOT eyesight test certificate + 36-months' sea service on a vessel of at least 25 tons gross tonnage.
Duration:	Approximately 6 weeks, including MED II training
Description:	Navigating instruments, ship knowledge, general seamanship.
Objective:	To prepare students for the MOT examinations for the Able Seaman certificate of competency.

AUTOMATIC RADAR PLOTTING AID (ARPA)

Location:	Marine Institute, St. John's (E)
Prerequisites:	SEN I certificate, or equivalent.
Duration:	5 days
Description:	Principles of ARPAs and special operating skills for preventing dangerous situations.
Objective:	To broaden the navigational skills of watchkeeping officers.

BALLAST CONTROL OPERATIONS TRAINING (BASIC)

Location:	Marine Institute, Offshore Safety Division Training Centre (E)
Prerequisites:	Comprehensive knowledge of Grade 11 Mathematics and Physics + a facility with trig-function calculator or two-years' experience as Ballast Control Operator + sponsorship by an offshore contractor.
Duration:	5 days
Description:	Principles of hydrostatics, theory of force & moments, stability at small & large angles, longitudinal stability, combined transverse & longitudinal stability, list heel & trim, simple stability calculations, dynamical & statical stability, fundamental curves, tables & scales, environmental & variable loadings, shearing & bending loads.
Objective:	To instruct persons responsible for the practical operation of Ballast Control systems in column stabilized drilling units in theoretical and practical training applicable to their day-to-day operations.

BALLAST CONTROL OPERATIONS TRAINING (ADVANCED)

Location:	Marine Institute, Offshore Safety Division Training Centre (E)
Prerequisites:	Successful completion of Ballast Control Operations Training (Basic) or Minimum ON II certificate of competency with service on an operation MODU + a pass in a challenge examination on basic stability.
Duration:	5 days
Description:	Intact & damaged stability, theory & calculations, deck loadings, de-ballasting & flooding, ballasting & de-ballasting procedures, ballast control systems, emergency operations procedures, operations manual, sub-arctic operations, environmental limitations & effects, emergency scenario case studies.
Objective:	To develop a thorough understanding of the process involved in maintaining satisfactory stability in a MODU in the face of extreme conditions of damage & environment by the judicious use of ballast and weight control.

BASIC OFFSHORE SURVIVAL (BOS)*

Location:	Marine Institute, Offshore Safety Division Training Centre (E)
Prerequisites:	Must have medical certificate, valid within past year.
Duration:	35 hours
Description:	Familiarization with hazards associated with offshore work, safety & survival techniques & equipment, with particular emphasis on passenger helicopter procedures & emergencies.
Objective:	To provide a basic level of survival training for personnel whose duty involves short and infrequent visits to vessels operating on Canada's Eastern Seaboard, and in the case of drilling units, where these visits are less than 6-days' duration per annum.

*Designed for personnel going to drilling units for less than 6 days per annum. The course is in accordance with Newfoundland Petroleum Directorate regulations.

BASIC OFFSHORE SURVIVAL TRAINING (BOST)*

Location:	Marine Institute, Offshore Safety Division Training Centre (E)
Prerequisites:	Must have medical certificate, valid within past year.
Duration:	10 days
Description:	Offshore hazards, fire prevention & control, rig abandonment, rescue & survival, lectures, demonstration and hands-on experience in helicopter-related training, cardiopulmonary resuscitation (CPR), Emergency Safety-Oriented First Aid (SOFA), and hypothermia.
Objective:	To provide survival & safety training for persons employed on offshore drilling units.

*Requisite for all persons who will be employed on offshore drilling units for more than six days per annum. Course approved by Newfoundland Petroleum Directorate.

BRIDGEWATCHMAN

Location:	Marine Institute, St. John's (E)
Prerequisites:	Not less than 16 years of age + valid MOT eyesight test certificate + 6-months' sea service in a navigational watch including 8-hours' steering on vessel of at least 25 tons gross tonnage.
Duration:	Approximately 6 weeks, including MED II training
Description:	Navigating instruments, ship knowledge, general seamanship.
Objective:	To prepare students for the MOT examinations for certificate as Bridgewatchman.

CN II FIRST MATE INLAND WATERS

Location:	Marine Institute, St. John's (E)
Prerequisites:	12-months' sea service while holding Watchkeeping Mate certificate.
Duration:	Approximately 24 weeks
Description:	Communications, ship management, stability, ship construction and cargo, general seamanship.
Objective:	To prepare students for the MOT examinations for CN II First Mate Inland Waters certificate.

CN I MASTER INLAND WATERS

Location:	Marine Institute, St. John's (E)
Prerequisites:	12-months' sea service while holding ON II certificate.
Duration:	Approximately 24 weeks
Description:	Chartwork & pilotage, navigation safety, meteorology, ship management, cargo, engineering knowledge, general seamanship, SEN II.
Objective:	To prepare students for the MOT examinations for CN I Master Inland Waters certificate.

COMMAND ENDORSEMENT

Location:	Marine Institute, St . John's (E)
Prerequisites:	Watchkeeping Mate certificate + total 3-years' sea service.
Duration:	Approximately 15 weeks
Description:	Chartwork & pilotage, meteorology, ship management, general seamanship, SEN II.
Objective:	To prepare students for the MOT examination for Command Endorsement on the Watchkeeping Mate certificate.

DECKHAND (PRE-SEA) MERCHANT MARINE

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Physically fit + MOT eyesight certificate.
Duration:	12 weeks
Description:	Practical seamanship (training vessel), theoretical seamanship, First Aid, safety at sea, MED II.
Objective:	To train new recruits for the Merchant Marine in all aspects of basic seamanship.

DIGITAL ELECTRONICS

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Minimum of 1 year Electronics Training, or equivalent.
Duration:	51 hours, evenings
Description:	Basic digital concepts, number systems, introduction to Boolean Algebra, logic gates & families, combinatorial logic design, memory elements, latches & flip-flops, registers, sequential logic design.
Objective:	To provide technicians & others with knowledge of the fundamentals of digital electronic circuits.

ELECTRICAL ENGINEERING TECHNOLOGY

Location:	Marine Institute, St. John's (E)
Prerequisites:	Senior High School Graduation Certificate with passes in Mathematics, Language and Level III Sciences, together averaging 60% or a Grade XI Public Examinations Matriculation Certificate with an average of 60% or any certificate of attainment deemed by Committee on Admissions to be equivalent.
Duration:	3 years (Primary, Intermediate and Advanced)
Description:	The **Primary** program (1st year) comprises mathematics, communication skills, physics, engineering drawing, electrical fundamentals, workshop practice, computer programming (basic), electronic devices. The **Intermediate** program (2nd year) comprises mathematics, communication skills, electrical machines, electrical practice, special projects, applied mechanics, a.c. circuit theory and measurements, control and power electronics. The **Advanced** program (3rd year) comprises engineering economy, motor control systems, power transmission and distribution, electrical installations, applied mathematics, computer science, protective relaying, technical report, automatic control systems, engineering management.
Diploma:	Diploma of Technology is awarded upon successful completion of the Advanced year.

ELECTRONICS TECHNOLOGY

Location:	Marine Institute, St. John's (E)
Prerequisites:	Senior High School Graduation Certificate with passes in Mathematics, Language and Level III Sciences, together averaging 60% or a Grade XI Public Examinations Matriculation Certificate with an average of 60% or any certificate of attainment deemed by Committee on Admissions to be equivalent.
Duration:	3 years (Primary, Intermediate and Advanced)
Description:	The **Primary** program (1st year) comprises mathematics, communication skills, physics, engineering drawing, electrical fundamentals, workshop practice, computer programming (basic), electronic devices. The **Intermediate** program (2nd year) comprises mathematics, communication skills, physics, electronic circuit analysis, electronic communications, electronic instrumentation, microcomputer programming, electronic instrument lab. The **Advanced** program (3rd year) comprises applied mathematics, engineering economy, electronic circuits, microcomputer interfacing and applications, engineering management, electronic circuit design, microcomputer systems and projects, technical report, automatic control systems, industrial process control + option 1: communications systems, communications systems design lab, radar & sonar systems, navigation systems; or option 2: industrial control electronics, instrumentation for process control.
Diploma:	Diploma of Technology is awarded upon successful completion of the Advanced Year.

ENDORSEMENT IN COMPASS DEVIATION*

Location:	Marine Institute, St. John's (E)
Duration:	Varies according to student's experience & ability
Description:	Magnetism, electricity, compass work & ship's magnetism.
Objective:	To prepare for MOT examinations and to do practical examination on compass deviation.

*Course for senior officers.

FAST RESCUE CRAFT TRAINING (FRC)*

Location:	Marine Institute, Offshore Safety Division Training Centre (E)
Duration:	4 days
Description:	Craft design, components & philosophy, safe craft handling, safety & rescue equipment, rescue techniques, handling of casualties, search & communications, helicopter evacuations from craft, drills & exercises.
Objective:	To provide detailed theoretical and practical knowledge in FRC handling and rescue techniques.

*Instruction is mainly hands-on, using either jet- or propellor-driven boats. Course is run by two instructors with a maximum of three students per course.

FIRST MATE FERRY STEAMSHIP

Location:	Marine Institute, St. John's (E)
Prerequisites:	2-years' sea service.
Duration:	Approximately 18 weeks
Description:	Three classes of certificates: Short Run, Intermediate Run, Long Run. Courses include navigating instruments, chartwork and pilotage, navigational safety, general seamanship, SEN I, general ship knowledge, ship management.
Objective:	To prepare students for the MOT examination for First Mate Ferry Steamship certificate.

INDUSTRIAL INSTRUMENTATION (CERTIFICATE PROGRAM)

Location:	Marine Institute, St. John's (E)
Prerequisites:	Successful completion of the Primary-level Electrical/Electronics program, or equivalent.
Duration:	9 months
Description:	Mathematics, applied mechanics, applied electronics, instrumentation theory, instrumentation lab, special projects, digital fundamentals, process control, analysis instrumentation, microprocessors.
Objective:	To prepare students for any indentured apprenticeship program in the field of industrial instrumentation; or, depending on the industry, for employment as technicians.

INTRODUCTION TO OCEANOGRAPHY

Location:	Marine Institute, St. John's (E)
Duration:	18 weeks, evenings
Description:	Broad perspective of the origins of oceans & oceans' characteristics, with special emphasis on factors affecting the mariner, petroleum exploration & development, & the fishery.
Objective:	To provide persons who work on or derive their pleasure from the sea, with an in-depth appreciation of the ways oceans work.

MARINE COOKING AND STEWARDING (VOCATIONAL CERTIFICATE PROGRAM)

Location:	Marine Institute, St. John's (E)
Prerequisites:	Physically fit + chest X-ray + Grade 10, or equivalent. Previous experience at sea an advantage.
Duration:	36 weeks, including 4 weeks of industrial service as available
Description:	Food preparation and storage, sanitation and hygiene, galley equipment, inventory control, stewarding, galley administration, MED II.
Objective:	To train persons for employment in the marine catering field; and to develop the knowledge, skills and attitude necessary for students to achieve success as trained marine cooks or stewards.

MARINE DIESEL MECHANICS PROGRAM

Location:	Marine Institute, St. John's (E)
Duration:	36 weeks, Fall, Winter and Spring
Description:	Internal combustion engines, diesel engines, marine diesel engines and their auxiliary equipment.
Certificate:	Vocational Certificate in Marine Diesel Mechanics

MARINE ELECTRICAL PRACTICE

Location:	Marine Institute, St. John's (E)
Prerequisites:	High school graduation, or equivalent.
Duration:	9 months
Description:	Communication skills, mathematics, blueprint reading, electrical theory, electrical workshop, craft theory, shipbuilding, introduction to electronics.
Objective:	To prepare students for entry into indentured apprenticeship programs in the electrical field; or, depending on the industry, for employment as repair or maintenance men.

MARINE ELECTRONICS (CERTIFICATE PROGRAM)

Location:	Marine Institute, St. John's (E)
Prerequisites:	Successful completion of the Primary-level Electronics/Electrical program, or equivalent.
Duration:	9 months
Description:	Mathematics, electronic theory, applied electronics, test equipment, special projects, digital fundamentals, micro-processors.
Objective:	To prepare students to become, with experience, technical specialists in the marine industry.

MARINE EMERGENCY DUTIES II (MED II)*

Location:	Marine Institute, Offshore Safety Division Training Centre or Off-campus (E)**
Duration:	10 days
Description:	Lifesaving appliances, firefighting, rescue and survival, First Aid.
Objective:	To prepare students for MED II, MOT examinations.

*Requisite for senior certificates and for most associated industries.

**Off-campus this course will be offered on the Burin Peninsula, beginning in 1985, for fishermen and trawlermen.

MARINE EMERGENCY DUTIES III (MED III)*

Location:	Marine Institute, Offshore Safety Division Training Centre (E)
Prerequisites:	Valid MED II certificate.
Duration:	5 days
Description:	Lifesaving, firefighting, ship handling and management.
Objective:	To provide advanced emergency duties training.

*Successful completion of Cardiac Pulmonary Resuscitation (CPR) course will be a requirement to obtain a MED III Certificate. MED III is required for advanced officers' MOT certification.

MED II TO BOST CONVERSION*

Location:	Marine Institute, Offshore Safety Division, Training Centre or Off-campus (E)
Prerequisites:	Valid MED II Certificate.
Duration:	5 days
Description:	Includes Safety Oriented First Aid (SOFA) and Cardiopulmonary Resuscitation (CPR)*.
Objective:	To upgrade persons holding valid MED II certificate to meet the Newfoundland & Labrador Petroleum Directorate's requirements for Basic Offshore Survival Training (BOST).

*Trainees with valid SOFA and CPR Certificates are not required to take these elements of course.

MARINE ENGINEER, 4TH CLASS

Location:	Marine Institute, St. John's, (E)
Prerequisites:	Not less than 18 years of age + sea service as outlined in the MOT regulations relating to the Examination of Marine Engineers, Schedule D.
Duration:	As required to successfully complete the MOT examinations
Description:	Courses as required to pass the MOT examinations.
Objective:	To prepare a candidate for the MOT examinations for a 4th Class certificate of competency.

MARINE ENGINEER, 3RD CLASS

Location:	Marine Institute, St. John's (E)
Prerequisites:	Not less than 21 years of age + sea service as outlined in the MOT regulations relating to the Examination of Marine Engineers, Schedule E.
Duration:	As required to successfully complete the MOT examinations
Description:	Courses as required to pass the MOT examinations.
Objective:	To prepare a candidate for the MOT examinations for a 3rd Class certificate of competency.

MARINE ENGINEER, 2ND CLASS

Location:	Marine Institute, St. John's (E)
Prerequisites:	Not less than 21 years of age + sea service as outlined in the MOT regulations relating to the Examination of Marine Engineers, Schedule F.
Duration:	As required to successfully complete the MOT examinations - starting preferably in Fall.
Description:	Courses as required to pass the MOT examinations.
Objective:	To prepare a candidate for the MOT examinations for a 2nd Class certificate of competency.

MARINE ENGINEER, 1ST CLASS

Location:	Marine Institute, St. John's (E)
Prerequisites:	Not less than 22 1/2 years of age + sea service as outlined in the MOT regulations related to the Examination of Marine Engineers, Schedule G.
Duration:	As required for successful completion of MOT examinations - starting preferably in Fall.
Description:	Courses as required to pass the MOT examinations.
Objective:	To prepare a candidate for the MOT examinations for a 1st Class certificate of competency.

MARINE ENGINEERING TECHNOLOGY (DIPLOMA PROGRAM)*

Location:	Marine Institute, St. John's (E)
Prerequisites:	Senior High School Graduation Certificate with passes in Mathematics, Language and Level III Sciences, together averaging 60% or a grade XI Public Examination Matriculation Certificate with an average of 60% or any certificate of attainment deemed by Committee on Admissions to be equivalent.
Duration:	3 years (Primary, Intermediate and Advanced)
Description:	The **Primary** program (1st year) comprises mathematics, communication skills, physics, applied thermodynamics, engineering practice, engineering drawing, machine shop, welding practice. The **Intermediate** program (2nd year) comprises mathematics, engineering chemistry, strength of materials, mechanics of machines, electrotechnology, naval architecture, engineering practice, machine shop, materials and processes. The **Advanced** program (3rd year) comprises applied thermodynamics, strength of materials, mechanics of machines, electrotechnology, naval architecture, engineering practice, fluid mechanics.

*Graduates from this three-year Diploma Program will be accepted by the MOT as having qualifying service required for a 4th Class Engineer Steam & Motor certificate of competency examination. Also, they shall be exempted from the whole of Part A of the 2nd & 3rd Class examinations.

MARINE/INDUSTRIAL CONTROL ELECTRONICS

Location:	Marine Institute, St. John's or Off-Campus (E)
Prerequisites:	Age 19 minimum + Grade XI with pre-employment electrical or electronics course or be employed as industrial/marine electrician (or apprentice) in either trade.
Duration:	84 hours, evenings
Description:	The course consists of two terminal devices, transistor theory, thyristor theory, differential and operational amplifiers, static (digital) control, programmable logic controller, non-electronic devices, practical circuit analysis.
Objective:	To upgrade electrical workers in selected areas of Marine & Industrial Control Electronics.
Certificate:	A certificate of successful completion is issued.

MARINE STEELWORK

Location:	Marine Institute, St. John's (E)
Duration:	9 months
Description:	Mathematics, communication skills, steelwork and shipbuilding theory, plans and templates, steelwork practical, First Aid I, science.
Objective:	To prepare students for employment in the steelworking departments of shipbuilding and ship repair yards.

MARINE STEWARDING (VOCATIONAL CERTIFICATE PROGRAM)

Location:	Marine Institute, St . John's (E)
Prerequisites:	Physically fit + chest X-ray. Grade 10 preferred.
Duration:	16 weeks, including 4 weeks of industrial service as available
Description:	Basic elements of sanitation, food service, shipboard duties, MED II.
Objective:	To train students for employment as Marine Stewards or Utility Hands for the Marine Industry; and to develop knowledge, skills and attitude necessary to achieve success as trained Marine Stewards.

MARINE SYSTEMS DESIGN TECHNOLOGY (DIPLOMA PROGRAM)

Location:	Marine Institute, St. John's (E)
Prerequisites:	High school completion, or equivalent.
Duration:	3 years (Primary, Intermediate and Advanced)
Description:	The **Primary** program (1st year) comprises mathematics, physics, communication skills, mechanics of machines, ship theory, applied thermodynamics, auxiliary systems design technology, computer programming. The **Intermediate** program (2nd year) comprises mathematics, strength of materials, electrotechnology, applied thermodynamics, marine engineering design process, refrigeration and hydraulic system technology, auxiliary systems design technology, naval architecture, propulsion technology, computer applications, powering system technology. The **Advanced** program (3rd year) comprises strength of materials, electrotechnology, ship design interface, feasibility and reliability theory, ship engineering design project, measurement and control technology, shipyard management, offshore platforms engineering technology, cold environment design technology.
Objective:	To train Marine Systems Designers in practical skills of the detail design, arrangement and erection of all internal machinery systems within or carried by the hull.

MASTER FERRY STEAMSHIP

Location:	Marine Institute, St. John's (E)
Prerequisites:	18-months' sea service + Watchkeeping Mate certificate or First Mate Ferry Steamship certificate or Command Endorsement certificate + passes in MOT examinations in ship management, stability & general seamanship.
Duration:	Approximately 24 weeks
Description:	Three classes of certificates: Short Run, Intermediate Run and Long Run. Courses include ship management, stability, general seamanship, SEN II, communications, chartwork and pilotage, navigational safety.
Objective:	To prepare students for the MOT examinations for Master Ferry Steamship certificate.

MASTER MARINER

Location:	Marine Institute, St. John's (E)
Prerequisites:	12-months' sea service while holding ON I (total sea service of 5 years).
Duration:	Approximately 24 weeks
Description:	Navigating instruments, ship management, naval architecture, engineering knowledge, electricity, general seamanship.
Objective:	To prepare students for the MOT examinations for Master Mariner certificate.

MASTER, MINOR WATERS STEAMSHIP

Location:	Marine Institute, St. John's (E)
Prerequisites:	12-months' sea service.
Duration:	Approximately 18 weeks
Description:	Chartwork and pilotage, shipmaster's business and shipboard knowledge, oral and practical, navigation safety.
Objective:	To prepare students for the MOT examinations for Master, Minor Waters Steamship certificate.

MASTER OF A SMALL CRAFT AND MASTER OF A SMALL PASSENGER CRAFT*

Location:	Marine Institute, St. John's (E)
Prerequisites:	Must own a passenger craft or have worked on one as helper.
Duration:	Approximately 14 weeks
Description:	The examination is based on as much of the syllabus for the Master, Minor Waters, as deemed appropriate to the area of operation and the type of craft for which the certificate is to be valid.
Objective:	To prepare students for the MOT examinations for Master of a Small Craft and Master of a Small Passenger Craft certificate.

*Certificate is valid on a vessel of not more than 40 tons gross tonnage, not certified to carry more than 40 passengers, or not more than 65 feet in overall length.

MATE AND MASTER LIMITED

Regulations in preparation.

MOLLUSC CULTURE (MUSSELS AND SCALLOPS) - Proposed 1986

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Grade X, or equivalent + recommendation from Provincial Departments of Fisheries or Rural, Agricultural and Northern Development + good health.
Duration:	Approximately 2 weeks
Description:	Mollusc biology, farm site selection, legal requirements, equipment and facilities, design and structure, spat collection, grow-out techniques, marketing, management.
Objective:	To provide information to prospective mollusc farmers for initiating & developing a mollusc farm.

NAUTICAL SCIENCE TECHNOLOGY (DIPLOMA PROGRAM)*

Location:	Marine Institute, St. John's (E)
Prerequisites:	MOT eyesight examination + Senior High School Graduation Certificate with passes in Mathematics, Language and Level III Sciences, together averaging 60% or a Grade XI Public Examinations Matriculation Certificate with an average of 60% or any certificate of attainment deemed by Committee on Admissions to be equivalent.
Duration:	3 years (Primary, Intermediate and Advanced) - Fishing Technology option: Sea time on commercial fishing vessels required prior to graduation. Merchant Marine option: Program approximately 4 years of combined institute training (27 months) and training at sea (18 months).
Description:	The **Primary** program (1st year) comprises mathematics, physics, communication skills, shipbuilding, communications (signals), seamanship, navigation, engineering knowledge, meteorology/oceanography. The **Intermediate** program (2nd year) comprises either mathematics, communication skills, chemistry, seamanship, navigation, naval architecture, electrotechnology, engineering knowledge, computer programming, and either cargo operations, hydrography (Merchant Marine), or fishing gear technology, fish detection, fishing techniques, technical report (Fishing Technology). The **Advanced** program (3rd year) comprises either seamanship, meteorology/oceanography, marine law, cargo operations, nautical astronomy, navigational aids including SEN I (Merchant Marine); or seamanship, fisheries and marine law, fishing gear technology, handling/processing of fish, industrial hydraulics, nautical astronomy, navigational aids including SEN I, technical report (Fishing Technology).

*Fishing Technology and Merchant Marine options available. This Diploma Program is officially recognized by the Canadian Coast Guard as a Cadet Program during which the Watchkeeping Mate & First Mate Intermediate Trade certificates of competency are obtained prior to graduation.

NAVAL ARCHITECTURE (DIPLOMA PROGAM)

Location:	Marine Institute, St. John's (E)
Prerequisites:	High school graduation, or equivalent.
Duration:	3 years (Primary, Intermediate and Advanced)
Description:	The **Primary** program (1st year) comprises mathematics, physics, communication skills, mechanics of machines, ship theory, shipbuilding, computer programming. The **Intermediate** program (2nd year) comprises mathematics, strength of materials, marine engineering practice, electrotechnology, shipbuilding, ship theory, computer applications, resistance and propulsion. The **Advanced** program (3rd year) comprises strength of materials, ship design, ship theory, hydrodynamics, ship design project, shipboard operations, marine engineering project, electrotechnology project, shipyard management.
Objective:	To train Naval Architects in practical skills of design of the hull form and structure, arrangement of accommodations, selection and design of propulsors and external control systems and hydrodynamic features of ships.

OFFSHORE FIRE LEADERS TRAINING (OFL)

Location:	Marine Institute, Offshore Safety Division Training Centre (E)
Prerequisites:	Medical certificate valid within past year.
Duration:	5 days
Description:	Responsibility of fire leaders, assessment of fire condition & correct initial action, proficient operation & assessment of firefighting equipment, rectification of unserviceable equipment, organization, monitoring & assessment of fire drills.
Objective:	To provide training for potential fire leaders to take correct actions when a fire hazard or fire occurs, to ensure proficiency in the use of firefighting equipment applicable to the offshore and to assume confident leadership of a fire team.

OFFSHORE FIRE TEAM TRAINING (OFT)

Location:	Marine Institute, Offshore Safety Division Training Centre (E)
Prerequisites:	Medical certificate valid within past year.
Duration:	5 days
Description:	Fire science, prevention & drills, fire suppression & containment equipment, personnel protective equipment, rescue equipment, fire assessment, firefighting techniques, search & rescue, automatic fire detection & protective systems.
Objective:	To enable students to become knowledgeable in the various aspects of fire prevention & extinguishment on-board a drilling unit or conventional ship & to practice firefighting as a team.

OILSPILL COUNTERMEASURES TRAINING UNIT (OCTU)

Location: Marine Institute, Offshore Safety Division Training Centre & on-site (E)

Prerequisites: Medical certificate valid within past year.

Duration: 5 days each for Offshore One & Two & Inshore One; 3 days for Command One

Description: 4 courses offered:

- **Offshore One:** A basic course for all personnel likely to become members of an offshore oilspill response crew. Content: Types of spill, environmental impact, hands-on training with offshore oilspill, countermeasures equipment including booms, recovery equipment, disperants.
- **Offshore Two:** For graduates of 'Offshore One'. Further training (in greater depth) in the operation, prevention, maintenance & trouble-shooting of countermeasures equipment.
- **Inshore One:** A course for personnel likely to become members of an inshore oilspill response crew. Content: Types of spill, environmental impact, hands-on training with inshore oilspill countermeasures equipment.
- **Command One:** A course for personnel likely to assume an active supervisory role in oilspill countermeasures. Emphasis on contingency planning & simulated countermeasures exercises.

Objective: To provide members of oilspill-response crews with intensive, practical training in running & handling types of countermeasures equipment in the kind of operating conditions for which they were designed.

ON II FIRST MATE HOME TRADE

Location: Marine Institute, St. John's, (E)

Prerequisites: 12-months' sea service while holding Watchkeeping Mate certificate.

Duration: Approximately 24 weeks

Description: Communications, astro-navigation, ship management, stability, ship construction and cargo, engineering knowledge, general seamanship.

Objective: To prepare students for the MOT examinations for ON I First Mate Home Trade certificate.

ON I MASTER HOME TRADE

Location:	Marine Institute, St. John's, (E)
Prerequisites:	12-months' sea service while holding ON II.
Duration:	Approximately 24 weeks
Description:	Chartwork and pilotage, navigation, navigating aids, navigation safety, meteorology, ship management, cargo, ship construction and engineering, general seamanship, SEN II.
Objective:	To prepare students for the MOT examinations for ON I Master Home Trade certificate.

POWER ENGINEERING TECHNOLOGY (DIPLOMA PROGRAM)*

Location:	Marine Institute, St. John's (E)
Prerequisites:	Senior High School Graduation Certificate with passes in Mathematics, Language and Level III Sciences, together averaging 60% or a Grade XI Public Examinations Matriculation Certificate with an average of 60% or any certificate of attainment deemed by Committee on Admissions to be equivalent.
Duration:	3 years (Primary, Intermediate and Advanced)
Description:	The **Primary** program (1st year) comprises mathematics, physics, communication skills, applied thermodynamics, engineering drawing, engineering practice, machine shop, welding practice. The **Intermediate** program (2nd year) comprises mathematics, strength of materials, mechanics of machines, engineering technology, engineering practice, machine shop, materials and processes, engineering chemistry. The **Advanced** program (3rd year) comprises applied thermodynamics, strength of materials, mechanics of machines, electrotechnology, engineering practice, fluid mechanics.

*Graduates from the Diploma Program in Power Engineering Technology who have obtained six-months' operating experience will be accepted by the Engineering and Technical Services Division as having the qualifying service required to write a Third Class Certificate of Competency examination.

PROFESSIONAL FISHING AND HUNTING GUIDE - Proposed 1985-86*

Location:	Marine Institute, Off-campus at Stephenville, Gander, Goose Bay (E)
Duration:	12 weeks
Description:	Water safety, canoeing, small engine care and repair, First Aid, CPR, survival techniques, outdoor cookery, map reading and compass use, guide etiquette, fishing techniques, fish behaviour, care of the catch, hunter safety, hunting techniques, game bird and big game behaviour, cleaning and care of birds and mammals followed by practical attachments.

*Under negotiation with the Salmon Association of Eastern Newfoundland for certification as an Institute program.

QUALITY CONTROL AND NON-DESTRUCTIVE TESTING - Proposed 1986

Location:	Marine Institute, St. John's (E)
Prerequisites:	High school graduation, or equivalent.
Duration:	1 or 2 years (to be determined)
Objective:	To train industry personnel in techniques for inspection and quality control of fabricated structures with particular reference to offshore applications.

RADIO-COMMUNICATIONS*

Location:	Marine Institute, St. John's (E)
Prerequisites:	Successful completion of the Primary-level Electrical/Electronics program with credit standing. Applicants are invited to submit documentary proof of training and experience for consideration by Admissions.
Duration:	9 months
Description:	Communication skills, marine operations, keyboarding, radio regulations & procedures, electronic principles, digital electronics, maintenance & practice, micro-computers.
Objective:	To prepare students for all skills required of a ship's Radio Officer.

*External examinations are administered by the Department of Communications for the Radio-Communications Operator's General Certificate (Maritime) (RGMC) for which candidates must pass a hearing test administered by the Department.

REFRIGERATION AND AIR CONDITIONING (BASIC)

Location:	Marine Institute, St. John's or Off-campus (E)
Prerequisites:	Refrigeration mechanic or helper with a minimum of 6-months' on-the-job experience + Grade 10 preferred.
Duration:	120 hours (2 evenings/week for 20 weeks)
Description:	Refrigeration systems & principles, heating/cooling & other mechanical systems.
Objective:	To upgrade the competence of persons presently employed as a refrigeration mechanic or helper.
Certificate:	A certificate of completion is issued by the Refrigeration Engineers Service Society.

REFRIGERATION PLANT OPERATION (CERTIFICATE PROGRAM)

Location:	Marine Institute, St. John's (E)
Prerequisites:	Grade 10, or equivalent + at least 17 years of age + possess mechanical aptitude.
Duration:	9 months, including approximately 4 weeks of 'in-industry' training
Description:	Mathematics, communication skills, engineering drawing, machine shop practice, electrotechnology, 4-weeks' practical training in local refrigeration plants, refrigeration theory.
Certificate:	Vocational certificate in Refrigeration Plant Operation.

RENEWABLE MARINE RESOURCE TECHNOLOGY - Proposed 1988

Location:	Marine Institute, St. John's (E)
Prerequisites:	Successful completion of the Primary-level Food Technology program, or equivalent.
Duration:	2 years
Description:	Includes the basic scientific disciplines, fish and shellfish diseases and their control, fish food formulation and nutritional requirements, ichthyology, aquaculture practices, water chemistry, aquatic plant biology, aquatic ecology, biological modelling surveying, oceanography, legal aspects, hydrodynamics and hydrology, fish genetics.
Objective:	To train technologists for aquaculture, government laboratories and field services, environmental consultants, aquatic environmental monitoring agencies, fisheries protection services, recreational fisheries and other related activities.

RIG RESCUE CRAFT TRAINING

Location:	Marine Institute, On rig site (E)
Duration:	3 days (or longer, depending on weather conditions)
Description:	Philosophy, construction & safe operating procedures of rescue craft, rescue craft handling, launch & recovery procedures, safety & rescue equipment, rescue techniques, transfer of casualties, search & rescue operations, drills, exercises & daily procedures.
Objective:	To give a detailed knowledge of launch/recovery apparatus, rescue craft & all associated equipment aboard a specific drilling or other unit.

SALMON AQUACULTURE TECHNICIAN - Proposed 1986

Location:	Marine Institute, St. John's & Off-campus (E)
Prerequisites:	Grade X, or equivalent + recommendation from Provincial Departments of Fisheries or Rural, Agricultural and Northern Development.
Duration:	One year
Description:	Salmonid life cycles, broodstock collection & holding, operation & maintenance of hatchery facilities, nutrition & feeding, fish diseases, culture techniques, site selection, farm management skills & marketing.
Objective:	To provide training in the areas of fish health & nutrition & culture techniques necessary for the management & operation of salmonid farms & hatcheries.

SHORT OFFSHORE SURVIVAL TRAINING (SOS)*

Location:	Marine Institute, Offshore Safety Division Training Centre (E)
Prerequisites:	Medical certificate valid within past year.
Duration:	5 days
Description:	Hazards associated with the offshore, elementary theory of fire, first response to discovery of fire, search & rescue, psychology of survival, emergency procedures, use of lifesaving appliances & survival equipment, hypothermia, helicopter emergency procedures including helicopter underwater escape training.
Objective:	To provide a basic level of survival training for personnel whose daily duty involves short & infrequent visits to vessels operating on Canada's Eastern Seaboard, and in the case of drilling units, where these visits are less than six-days' duration per annum.

*SOS Training can be upgraded to BOST by taking an optional seven-day course. SOS Training can also be designed according to individual company requirements, such as 1-day training in familiarization with life rafts & abandonment suits and/or 1-day training in helicopter emergency procedures.

SIMULATED ELECTRONIC NAVIGATION I (SEN I)

Location:	Marine Institute, St. John's (E)
Prerequisites:	Working knowledge of rules of the road and chartwork skills are required.
Duration:	6 weeks
Description:	Electronic navigational aids, navigational instruments, radar simulator.
Objective:	To provide fishermen & mariners with practical ways of developing & improving capacities & aptitudes in maritime navigation; and to increase confidence & competence in avoiding collisions.
Certificate:	A MOT certification of completion is issued.

SIMULATED ELECTRONIC NAVIGATION II (SEN II)

Location:	Marine Institute, St. John's (E)
Prerequisites:	Successful completion of SEN I course.
Duration:	2 weeks
Description:	Simulated radar exercises; and students command a simulated vessel under actual sea-going conditions involving coastal navigation, passage planning, parallel index techniques, maneuvering characteristics.
Objective:	To enhance skills in planning a practical course for ships to follow in coastal & pilotage waters, having due regard to all navigational factors, identifying & taking collision-avoidance action in multi-ship situations with & without navigational restrictions, and to develop increased levels of confidence & competence in the art of blind pilotage.
Certificate:	A MOT certificate of completion is issued.

SMALL CRAFT DESIGN (CERTIFICATE PROGRAM)

Location:	Marine Institute, St. John's (E)
Prerequisites:	High school graduation, or equivalent + a boatbuilding background.
Duration:	2 years
Description:	Drafting, basic naval architecture, engineering systems, fishing methods, boatbuilding theory (wood, steel/aluminum, fibreglass), boat design project, boatyard management, boatbuilding skills, boatbuilding project.
Objective:	To train students to design and supervise construction of commercial vessels in wood, steel, fibreglass or aluminum to 20 meters.

WATCHKEEPING MATE

Location:	Marine Institute, St. John's (E)
Prerequisites:	24-months' sea service + an eyesight and colour blindness test + MED I.
Duration:	Approximately 24 weeks
Description:	Navigating instruments, chartwork and pilotage, navigation safety, general ship knowledge, general seamanship, SEN I, mathematics.
Objective:	To prepare students for the MOT examinations for the Watchkeeping Mate certificate.

WATCHKEEPING MATE (RESTRICTED)

Regulations in preparation.

NOTE:

In addition to the courses listed above, the Marine Institute will also provide short workshops/seminars of 1-5 days duration on topics suggested below (depending on demand, funds and resources):

BLUEPRINT READING

CHART READING & COMPASS

INTERPRETATION OF ECHOGRAPHS

INTERPRETATION OF METEOROLOGICAL (WEATHER) REPORTS

INTRODUCTION TO GRP (GLASS RE-ENFORCED PLASTIC) (FIBREGLASS)

INTRODUCTION TO NAVIGATION

LOFTING, TEMPLATE AND MOLD MAKING

MARINE SAFETY

OPERATION OF ELECTRONIC NAVIGATIONAL AIDS

REFRIGERATION SYSTEMS, TROUBLE-SHOOTING AND MAINTENANCE

SMALL (TWO CYCLE) ENGINE REPAIR AND MAINTENANCE

TROUBLE-SHOOTING AND MAINTENANCE OF SHIPBOARD ELECTRONIC EQUIPMENT (RADAR, SONAR, ETC.)

VESSEL SELECTION AND DESIGN

III. NOVA SCOTIA

FISHERIES AND MARINE-RELATED PROGRAMS AND COURSES:
DEGREES; MOT CERTIFICATE PREPARATION; DIPLOMAS; CERTIFICATES OF COMPLETION OR ACCOMPLISHMENT (CC) OR VOCATIONAL CERTIFICATES (VC)

	Degrees	MOT Certificate Preparation	Diploma	CC or VC
Advanced Management Centre; Atlantic Region Management Training Centre	None	None	None	None
Atlantic Fisherman's Record Book Plan	None	None	None	Deckhand Offshore Fleet (CC); Trawlerman Offshore Fleet (CC) [Both taught at Nova Scotia School of Fisheries]
Canadian Institute of Fisheries Technology, Technical University of Nova Scotia	M.Sc. & Ph.D in Fisheries Engineering; M.Sc. & Ph.D. in Food Science	None	None	None
Cape Breton Adult Vocational Training Centre	None	None	None	None
Coady International Institute	None	None	None	None
Extension Department, St. Francis Xavier University	None	None	None	None
Nova Scotia Nautical Institute	None	*Nautical Science Options*:* Command Endorsement; CN I & II; MED I, II, III, & II-III Combined; Master Mariner; [Navigation Cadet—pre-Watchkeeping Mate]; ON I & II; Petroleum Tanker Safety; SEN I & II; Watchkeeping Mate *Marine Engineering Options:* [Engineering Cadet—pre-Marine Engineering Class 4]; MED, I, II, III, II-III Combined; Marine Engineer Class 1, 2, 3, 4; Petroleum Tanker Safety *Classes can also be scheduled for: Fishing Master Class 1, 2, 3, 4; Mate & Master Ferry Steamship; Master Minor Waters; Master Small Craft	New Entry Seaman—Diploma of Steamship	Engineering Cadet (CC); Navigation Cadet (CC); Tanker Familiarization (CC) Note: Certificates of Accomplishment are awarded for the following courses by the Nova Scotia Department of Fisheries unless otherwise noted. Fishing Business Practice & Record-Keeping; Deckhand Offshore Fleet (Deckhand certificate awarded through the Atlantic Fisherman's Record Book Plan); Fishing Income Tax Update; Marine Gas & Diesel Engine Maintenance; Pre-Sea Training; Refrigeration; Trawlerman Offshore Fleet (Trawlerman certificate awarded through the Atlantic Fisherman's Record Book Plan)
Nova Scotia School of Fisheries	None	*Nautical Science Options:* Fishing Master I, 2, 3, 4; Efficiency as a Lifeboatman; MED I, II; SEN I & II *Marine Engineering Options:* Chief Engineer of Motor-Driven Fishing Vessel; [Pre-Marine Engineer 4—Refrigeration]; MED I & II; Watchkeeping Engineer of a Motor-Driven Fishing Vessel	None	

III. NOVA SCOTIA

Advanced Management Centre
Henson College of Public Affairs
and Continuing Education
Dalhousie University
Halifax, Nova Scotia
B3H 3J5

Telephone (902) 424-2410
424-2526

Atlantic Region Management
Training Centre
Technical University of Nova
Scotia
1360 Barrington Street
Halifax, Nova Scotia
B3J 1V7

Telephone (902) 429-8300

A. FISHERMEN

No courses offered.

B. PLANT WORKERS

No courses offered.

C. MANAGEMENT

To organize management training courses, contact the above centres.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

No courses offered.

Atlantic Fisherman's Record Book Plan
P.O. Box 991
Dartmouth, Nova Scotia
B2Y 3Z6

Telephone (902) 463-7790
Telex 019-22845

The Atlantic Fisherman's Record Book Plan, a federally incorporated, non-profit association founded in 1974, is a source of fishermen's data concerning sea time and statistics on the offshore fishing fleet. This central source has been compiled for over seven years for five to six thousand offshore fishermen. The Atlantic Fisherman's Record Book Plan is funded by two fish companies; namely, National Sea, Nova Scotia and Madeli-Pêches, Iles-de-la-Madeleine, Quebec.

A. FISHERMEN

Through the Atlantic Fishermen's Record Book Plan two certificates are awarded at the Nova Scotia School of Fisheries in Pictou: the 'Deckhand Offshore Fleet' and the 'Trawlerman Offshore Fleet' certificates.

DECKHAND OFFSHORE FLEET*

Location:	NS School of Fisheries, Pictou (E)
Prerequisites:	Good formal education an asset; experience as a fisherman the prime requisite.
Duration:	4 weeks, Fall, Winter or Spring
Description:	Rope work, wire work, net mending, bottom trawl, Marine Emergency & Safety.
Objective:	To train learners to become trawler deckhands for the Nova Scotia offshore fishing fleet.
Certificate:	Deckhand Certificate is awarded through the Atlantic Fisherman's Record Book Plan.

*A Beginner must complete 30 days at sea on an offshore trawler in order to sit the Deckhand Examination.

TRAWLERMAN OFFSHORE FLEET*

Location:	NS School of Fisheries, Pictou (E)
Prerequisites:	Good formal education an asset; experience as a fisherman the prime requisite.
Duration:	5 weeks, Fall, Winter or Spring
Description:	Seamanship, fishing gear, care of the catch, shipboard personal hygiene, safety, First Aid.
Objective:	To train deckhands to become trawlermen for the Nova Scotia offshore fishing fleet.
Certificate:	Trawlerman's Certificate awarded through Atlantic Fisherman's Record Book Plan.

*Beginner must complete 270 sea days on offshore trawler before sitting Trawlerman's Examination.

B. PLANT WORKERS

No courses offered.

C. MANAGEMENT

No courses offered.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

No courses offered.

Canadian Institute of Fisheries Technology
Technical University of Nova Scotia
1360 Barrington Street
P. O. Box 1000
Halifax, Nova Scotia
B3J 2X4

Telephone (902) 429-8300

The Canadian Institute of Fisheries Technology at the Technical University of Nova Scotia is essentially a specialized resource centre for graduate-level education and research in fish process engineering and seafood science. The Institute's facilities include a food engineering pilot plant, well-equipped laboratories, and cold storage equipment.

Graduate studies programs are offered in aquaculture technology, fish process engineering, marine oils, process technology, and protein and fish post-mortem biochemistry. The Institute has also offered workshops and short courses in fish smoking, stabilization of edible oils against oxidation, and applied fish technology.

A. FISHERMEN

No courses offered.

B. PLANT WORKERS

No courses offered.

C. MANAGEMENT

No courses offered.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

AQUACULTURE DEVELOPMENT AND ENGINEERING

Location:	Canadian Institute of Fisheries Technology, Halifax (E)
Prerequisites:	B.Sc. in Food Science.
Duration:	Two years for M.Sc. (Food Science) degree, 3 years for Ph.D. degree
Description:	Fish/food processing I & II, advanced food chemistry, chemistry of fats, oils & lipids; M.Sc.: at least 2 additional courses + thesis; Ph.D.: at least 8 additional courses + thesis.
Objective:	To provide skills for assessing potential species for aquaculture development in the Maritime Provinces.

FISHERIES ENGINEERING

Location:	Canadian Institute of Fisheries Technology, Halifax (E)
Prerequisites:	B.Sc. in Food Science.
Duration:	Two years for M.Sc. (Food Science) degree, 3 years for Ph.D. degree
Description:	Fish/food processing I & II, advanced food chemistry, chemistry of fats, oils & lipids; M.Sc.: at least 2 additional courses + thesis; Ph.D.: at least 8 additional courses + thesis.
Objective:	To provide skills for examining aspects of fish handling & processing in the light of needs for high quality fish, greater output in processing, reduced energy costs & environmental considerations.

MARINE OILS

Location:	Canadian Institute of Fisheries Technology, Halifax (E)
Prerequisites:	B.Sc. in Food Science.
Duration:	Two years for M.Sc. (Food Science) degree, 3 years for Ph.D. degree
Description:	Fish/food processing I & II, advanced food chemistry, chemistry of fats, oils & lipids; M.Sc.: at least 2 additional courses + thesis; Ph.D.: at least 8 additional courses + thesis.
Objective:	To provide technical skills for defining differences in spoilage susceptibility of different local fish species such as mackerel & herring.

PROCESS TECHNOLOGY

Location:	Canadian Institute of Fisheries Technology, Halifax (E)
Prerequisites:	B.Sc. in Food Science.
Duration:	Two years for M.Sc. (Food Science) degree, 3 years for Ph.D. degree
Description:	Fish/food processing I & II, advanced food chemistry, chemistry of fats, oils & lipids; M.Sc.: at least 2 additional courses + thesis; Ph.D.: at least 8 additional courses + thesis.
Objective:	To develop skills in activities related to improved efficiency, product quality & yield in traditional fish processing operations.

PROTEIN AND FISH POST-MORTEM BIOCHEMISTRY

Location:	Canadian Institute of Fisheries Technology, Halifax (E)
Prerequisites:	B.Sc. in Food Science.
Duration:	Two years for M.Sc. (Food Science) degree, 3 years for Ph.D. degree
Description:	Fish/food processing I & II, advanced food chemistry, chemistry of fats, oils & lipids; M.Sc.: at least 2 additional courses + thesis; Ph.D.: at least 8 additional courses + thesis.
Objective:	To provide skills, using physical, chemical & sensory methods, in studying changes in texture & eating quality of various species of fish during frozen storage.

Cape Breton Adult Vocational Training Centre
Nova Scotia Department of Education
P. O. Box 1042
Sydney, Nova Scotia
B1P 6J7

Telephone (902) 564-5484

The Cape Breton Adult Vocational Training Centre in Sydney, Nova Scotia offers several skill development training courses related to marine industries. 'Contact Training' is an integrated part of all courses and allows students, after completion of two-thirds of a course, to spend one to four weeks working in the industry for which they are being trained. Training allowances, as determined by Canada Employment and Immigration, are available.

A. FISHERMEN

No courses offered.

B. PLANT WORKERS

No courses offered.

C. MANAGEMENT

No courses offered.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

INDUSTRIAL AND MARINE RIGGING

Location:	Cape Breton Adult Vocational Training Centre, Sydney (E)
Prerequisites:	Grade X, or equivalent + able to climb & maintain balance at heights + able to do heavy lifting + good eyesight + eye-to-hand co-ordination.
Duration:	10 months
Description:	Use of power-oriented equipment (cranes, hoists & winches), chain & rope falls, come-a-longs, jacks, skids & rollers, responsible work habits, estimating weights and required rigging, slings & cables, knots, bends & hitches.
Objective:	To provide theoretical & practical skills & knowledge for becoming an efficient rigger.

MARINE ELECTRICAL INSTALLATION AND MAINTENANCE

Location:	Cape Breton Adult Vocational Training Centre, Sydney (E)
Prerequisites:	Grade X, or equivalent.
Duration:	10 months
Description:	Theory of electricity & marine equipment, wiring installation in a simulated ship.
Objective:	To assist trainees in learning skills & knowledge required to install & repair electrical equipment & wiring on ships & other marine facilities according to required codes & standards.

Nova Scotia Nautical Institute
Nova Scotia Department of Education
P.O. Box 578
Pier 21
Halifax, Nova Scotia
B3J 2S9

Telephone (902) 424-3290

The Nova Scotia Nautical Institute (NSNI) is located at Pier 21 in Halifax and is primarily concerned with training candidates for the Merchant Marine and Marine Engineering. The NSNI was formed in 1974 when the navigation and engineering schools of the Halifax Marine School were combined. The NSNI provides training in the following areas:

General Professional Training

— Navigation Cadet
— Engineering Cadet
— New Entry Seaman
— Marine & Industrial Rigging

Ministry of Transport Certification

— Nautical Science (Merchant Marine)
— Marine Engineering
— Petroleum Tanker Safety

Courses can also be scheduled for the following MOT certificate levels:

— Fishing Master I, II, III, IV
— Mate and Master Ferry Steamship
— Master Minor Waters
— Master Small Craft

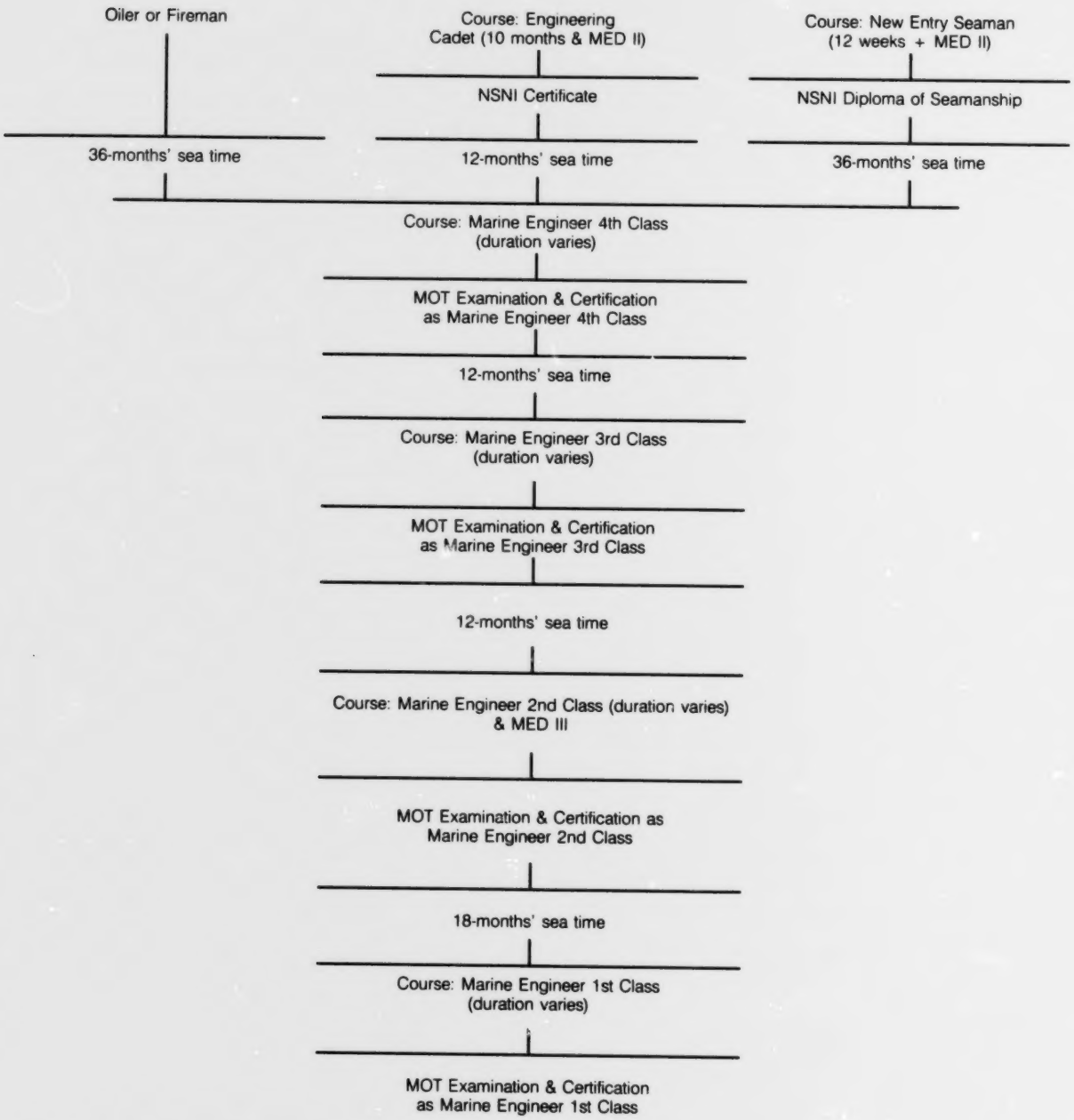
Simulated Electronic Navigation (SEN) I & II courses can be scheduled separately when required. SEN I & II certificates are awarded at the NSNI. Three weeks of Marine Emergency Duties II training is offered at the NSNI, including the one-week firefighting component not offered at the School of Fisheries at Pictou.

There is no extension service at the NSNI; thus, its programs are available only in Halifax. Specialized programs can be developed to meet the needs of industry as required.

A new Nautical Institute is scheduled to be built in Nova Scotia at Port Hawkesbury, Cape Breton.

NOVA SCOTIA NAUTICAL INSTITUTE

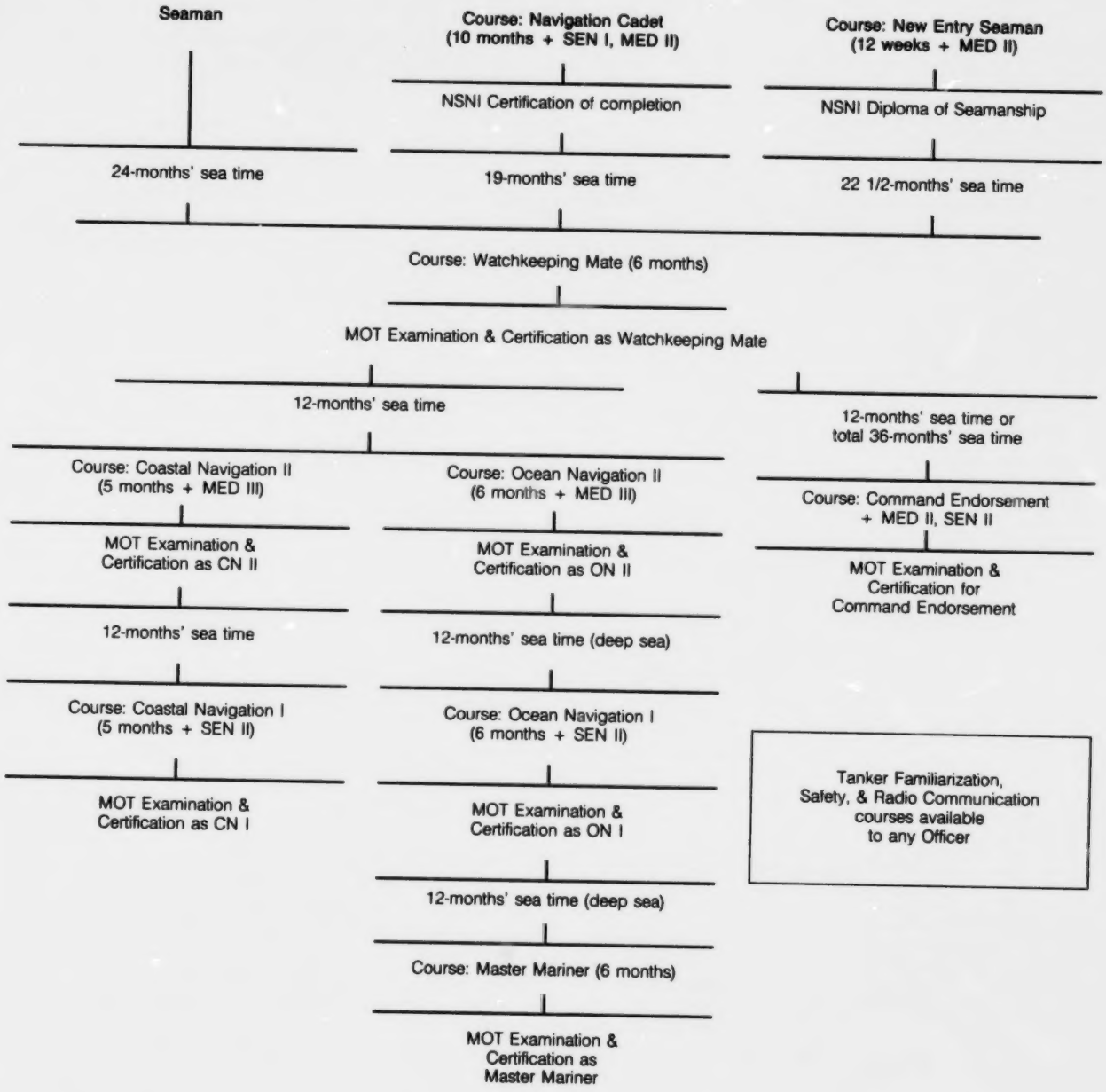
MARINE ENGINEERING


Oiler or Fireman
Course: Engineering Cadet (10 months & MED II)
Course: New Entry Seaman (12 weeks + MED II)
NSNI Certificate
NSNI Diploma of Seamanship
36-months' sea time
12-months' sea time
36-months' sea time
Course: Marine Engineer 4th Class (duration varies)
MOT Examination & Certification as Marine Engineer 4th Class
12-months' sea time
Course: Marine Engineer 3rd Class (duration varies)
MOT Examination & Certification as Marine Engineer 3rd Class
12-months' sea time
Course: Marine Engineer 2nd Class (duration varies) & MED III
MOT Examination & Certification as Marine Engineer 2nd Class
18-months' sea time
Course: Marine Engineer 1st Class (duration varies)
MOT Examination & Certification as Marine Engineer 1st Class

N.B. Length of courses and prerequisites can vary according to candidate's previous experience and aptitude. Candidates should familiarize themselves with appropriate MOT regulations and obtain valid MOT eyesight certificate and MOT certification of sea time served.

NOVA SCOTIA NAUTICAL INSTITUTE

NAUTICAL SCIENCE



N.B. Length of courses and prerequisites can vary according to candidate's previous experience and aptitude. Candidates should familiarize themselves with appropriate MOT regulations and obtain valid MOT eyesight certificate and MOT certification of sea time served.

A. FISHERMEN

No courses offered.

B. PLANT WORKERS

No courses offered.

C. MANAGEMENT

No courses offered.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

COASTAL NAVIGATION II (CN II)

Location:	NSNI, Halifax (E)
Prerequisites:	Must have valid sea time while holding Watchkeeping Mate certificate + must attend most of courses scheduled for ON II (see page 100) + must have valid eyesight test certificate.
Duration:	5 months
Description:	Communications, ship management, stability, ship construction and cargo, general seamanship, MED III.
Objective:	To prepare candidates for MOT examinations for CN II certification.

COASTAL NAVIGATION I (CN I)

Location:	NSNI, Halifax (E)
Prerequisites:	Must have 12-months' sea time while holding a CN II or ON II certificate + must attend most of the courses scheduled for ON I (see page 100).
Duration:	5 months
Description:	Chartwork and pilotage, navigation safety, meteorology, ship management, cargo, engineering knowledge, general seamanship, SEN II.
Objective:	To prepare candidates for MOT examinations for CN I certification.

COMMAND ENDORSEMENT

Location:	NSNI, Halifax (E)
Prerequisites:	A valid Watchkeeping Mate certificate + 36-months' valid sea time + a valid eyesight test certificate.
Duration:	Varies
Description:	Chartwork, meteorology, shipmasters' business, SEN II, MED II.
Objective:	To prepare candidates for MOT examinations for Command Endorsement certification.

ENGINEERING CADET*

Location:	NSNI, Halifax (E)
Prerequisites:	Must have grade 12 with good standing in Mathematics, Physics & Science + be able to carry out, receive & communicate verbal instructions + be able to work with minimal supervision + be able to work in confined spaces exposed to noise, heat & vibration.
Duration:	10 months
Description:	Mathematics, applied mechanics, thermodynamics, blueprint reading & sketching, electricity, naval architecture, stability, ship construction/design, workshop, marine engineering knowledge, MED I.
Objective:	To help trainees learn the skills and knowledge needed to work in an engine room as an engine room rating on any type of merchant ship.
Certificate:	NSNI will award a certificate of completion which credits candidates with 7-months' sea time in accordance with MOT requirements. (Students require additional 29-months' sea time to write 4th Class Marine Engineer MOT examinations.)

*Two months before entering course, candidates must take an eyesight & colour vision test + have a medical examination + be interviewed by school officials.

MARINE EMERGENCY DUTIES I (MED I)*

Location:	NSNI, Halifax (E)
Duration:	5 days
Description:	Lifesaving equipment, marine firefighting, First Aid - rescue & survival.
Objective:	To provide basic safety training for the small boat operator where MED II is not required by legislation, and to prepare candidates for MOT examination for MED I certificate.

*Normally only offered in response to specific requests from industry.

MARINE EMERGENCY DUTIES II (MED II)*

Location:	NSNI, Halifax (E)
Prerequisites:	Documented sea time + letter of employment offer from industry. (Other candidates taken into course as space allows.)
Duration:	3 weeks
Description:	Lifesaving equipment, marine firefighting, First Aid - rescue & survival.
Objective:	To provide basic safety training for people who work in the marine industry, and to prepare candidates for MOT examinations for MED II certificate.

*MED II certificate is required for all certificated officer qualifications. Standard St. John Ambulance certificate is awarded upon successful completion.

MARINE EMERGENCY DUTIES II AND III (COMBINED)*

Location:	NSNI, Halifax (E)
Prerequisites:	Must hold certificate entitling holder to command a commercial vessel + have valid First Aid certificate + valid CPR certificate.
Duration:	2 weeks
Description:	Firefighting, survival techniques, use of lifesaving equipment, on-board safety training, shipboard emergency organization, management of fires at sea/in port, bomb threats, man-over-board, rescue of survivors, medical assistance/evacuation, leadership in emergency, search & rescue operations, damage control, accident & fire prevention, abandon ship, co-operation with Maritime Authorities.
Objective:	To provide experienced seafarers having command qualifications with preparation for the MOT examinations for MED II & MED III.

*Course for Senior Officers who obtained their certificates prior to MED becoming a requirement for certification.

MARINE EMERGENCY DUTIES III (MED III)

Location:	NSNI, Halifax (E)
Prerequisites:	MED II certificate + First Aid certificate + Watchkeeping or Engineering III certificate + CPR certificate.
Duration:	5 days
Description:	On-board safety training, shipboard emergency organization, management of fires at sea/in port, bomb threat, man-over-board, rescue of survivors, medical assistance/evacuation, leadership in emergency, search and rescue operations, damage control, accident and fire prevention, abandon ship, co-operation with Maritime Authorities.
Objective:	To provide advanced training in marine disaster management, and to prepare candidates for MOT examinations for MED III certificate.

MARINE ENGINEER, CLASS I, II, III & IV*

Location:	NSNI, Halifax (E)
Prerequisites:	29-36 months' sea time (depending on candidates' previous experience & training) are required prior to entry in Marine Engineer 4th Class program. Additional 12-months' sea time are required prior to entry in the 3rd Class and 2nd Class programs. 18-months' sea time are required prior to entry in the 1st Class program.
Duration:	Depends on candidate's ability and effort
Description:	Practical mathematics, applied mechanics, applied thermodynamics, engineering drawing & blueprint reading, naval architecture & ship construction, electrotechnology, general steam & motor engineering knowledge, MED II.
Objective:	To train & upgrade students to qualify as Marine Engineers from 4th Class to Ist Class, as set down by MOT, and prepare them for MOT examinations for certificates of competency.

*Certification can be obtained in 1st - 4th Class Steam, Motor or Combined.

MARINE AND INDUSTRIAL RIGGING

Location:	NSNI, Halifax (E)
Prerequisites:	Grade 10 education + good physical condition + have medical examination not more than 3 months before taking course + ability to work under minimal supervision + ability to climb & work at heights in areas of noise, heat & dangerous positions + ability to work in all possible conditions.
Duration:	42 weeks, Fall and Winter
Description:	Basic mathematics, blueprint reading and sketching, safety procedures and shop practices, burning & cutting with oxyacetylene equipment & arc, basic knots, bends, hitches, ropes & their uses, computing breaking strength & safe working loads, splicing natural and synthetic fibre & wire rope, blocks & tackles, scaffolding & ladders, stresses & strains, slinging, strapping, running & standing rigging, booms, towers, cranes & signalling, sail making basics, use of socketing & special fittings.
Objective:	To prepare selected students to learn & develop skills and knowledge required to perform jobs in the industrial & marine field that a rigger and helper must do.

MASTER MARINER

Location:	NSNI, Halifax (E)
Prerequisites:	12-months' valid sea time while holding an ON I certificate + valid eyesight test certificate.
Duration:	6 months
Description:	Naval architecture, electricity, shipmasters' business, navigating instruments, engineering knowledge.
Objective:	To prepare candidates for MOT examinations for Master Mariner certificate.

NAVIGATION CADET

Location:	NSNI, Halifax (E)
Prerequisites:	Must have grade 12 with good standing in Mathematics & Physics + take an eyesight & colour vision test + have a medical examination + be interviewed by school officials (all to be undertaken/completed two months before entering course) + have ability to carry out, receive & communicate verbal instructions + have abilities to work under minimal supervision & in confined places.
Duration:	10 months, Fall-Spring
Description:	Practical navigation, principles of navigation, chartwork, general ship knowledge, collision regulations & seamanship, meteorology, preparation for SEN I, contact training, MED II, wire & rope splicing, ship visits.
Objective:	To provide pre-sea training for people who wish to make a career of the sea and who wish to become deck officers.
Certificate:	Graduates receive a certificate of completion from NSNI, which credits graduates with 5-months' sea time toward Watchkeeping Mate certification.

NEW ENTRY SEAMAN

Location:	NSNI, Halifax (E)
Prerequisites:	Must be interviewed by NSNI officials before acceptance.
Duration:	12 weeks, Fall, Winter or Spring
Description:	Nautical terminology, types & parts of ships, agreements & other documents, watchkeeping systems & routine duties, general seamanship, splicing wire & fibre rope, safety procedures, distress procedures, cargo work, sanitation & hygiene, attitudes - fellow workers & self, chain of authority, field trips to ships & industry, basic ship construction, 3-weeks' sea service on commercial vessel.
Objective:	To help trainees (male or female) to learn the skills & knowledge required for work as a seaman on any type of ship.
Certificate:	Graduates receive a Diploma of Seamanship from NSNI. Graduates are also granted a MED II certificate.

OCEAN NAVIGATION II (ON II)

Location:	NSNI, Halifax (E)
Prerequisites:	12-months' valid seatime while holding Watchkeeping Mate certificate + valid eyesight test certificate.
Duration:	6 months
Description:	Astro-navigation, stability, communications, cargo and construction, engineering knowledge, industrial safety and ship management, MED III, oral preparation.
Objective:	To prepare candidates for MOT examinations for ON II certificate.

OCEAN NAVIGATION I (ON I)

Location:	NSNI, Halifax (E)
Prerequisites:	12-months' valid sea time while holding an ON II certificate + valid eyesight test certificate.
Duration:	6 months
Description:	Astro-navigation, chartwork, meteorology, shipmasters' business, construction and engineering, cargo work, deviascope and magnetism, SEN II, oral preparation.
Objective:	To prepare candidates for MOT examinations for ON I certificate.

PETROLEUM TANKER SAFETY

Location:	NSNI, Halifax (E)
Prerequisites:	Experience on petroleum tankers or bulk oil marine terminals.
Duration:	5 days
Description:	Tanker design and development, applied science, cargo handling systems, operating procedures, fire prevention and extinguishing, tank cleaning and crude oil washing, inert gas systems, emergency procedures, safety in terminal operations, health hazards and First Aid, regulations and codes of practice.
Objective:	To provide ships' officers and oil terminal supervisors with an awareness of the hazards in tanker operations and a knowledge of the latest safety equipment, practice and procedures in the transportation and transfer of bulk petroleum & to prepare candidates for MOT examination for Petroleum Tanker Endorsement.

TANKER FAMILIARIZATION

Location:	NSNI, Halifax (E)
Duration:	2 days
Objective:	To familiarize ship's officers and personnel who lack tanker experience but who may be involved in bulk oil transfers with associated hazards and a knowledge of safe working procedures.
Certificate:	NSNI issues certificate of completion.

WATCHKEEPING MATE

Location:	NSNI, Halifax (E)
Prerequisites:	At least 2-years' valid sea time + valid eyesight test certificate.
Duration:	6 months
Description:	Chartwork, general ship knowledge, rules of the road, SEN I, MED II, R/T, oral preparation.
Objective:	To prepare the candidate for MOT examinations for Watchkeeping Mate certificate.

Nova Scotia School of Fisheries
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The Nova Scotia School of Fisheries is operated and maintained by the Training and Field Services Division of the Provincial Department of Fisheries. A nine-member field staff of Fisheries Representatives acts primarily as an extension service to monitor the state of the fishery and where possible provides solutions to local problems. The availability of courses offered at the school and through extension depends upon both the level of funding and the number of confirmed trainees.

The School of Fisheries is a complete live-in facility where fishermen can learn in both a residence and schoolroom atmosphere. Subject areas taught at the School of Fisheries include:

General Professional Training

— Pre-Sea Training — Introduction to Fisheries
— Deckhand Offshore Fleet
— Trawlerman Offshore Fleet

Ministry of Transport Certification

— Nautical Science (Fishing Master)
— Marine Engineering Options

Adult Education/Extension Programs

— Inshore Fishing Operations
— General Education

It is impossible, however, for many fishermen to spend weeks away from home to learn new skills, so the training section has developed a wide selection of extension courses that can be brought to fishing communities. There, the courses are conducted in one of the Department's fully-equipped training trailers or in a community building.

Most of the fisheries training courses are sponsored by the Canada Employment and Immigration Commission. Registration for courses must be completed through a local Canada Employment Centre at least two weeks before the course begins. The majority of courses limit enrollment to 12 - 15 trainees.

The Training and Field Servíces Division of the Nova Scotia Department of Fisheries also offers custom-designed programs upon request to assist in special training situations. Among the programs that have been designed and/or offered are those for Federal Fisheries Observers, Transport Canada and the Canadian International Development Agency (CIDA).

A. FISHERMEN

CHIEF ENGINEER OF A MOTOR-DRIVEN FISHING VESSEL OR 4TH CLASS ENGINEER ENDORSED FOR FISHING VESSEL CHIEF ENGINEER*

Location:	NS School of Fisheries, Pictou & one week at Halifax (E)
Prerequisites:	Good formal education an asset; experience in Engine Room or Machine Shop most important requisite + over 18 years of age + at least 36 months on regular watch as engineer on a motor ship of not less than 127 kilowatts propulson power while holding a Watchkeeping Engineer's certificate.
Duration:	15 weeks, Winter & Spring
Description:	Mathematics, mechanics & general engineering knowledge, engine construction and operation, marine electrical systems, marine hydraulics and refrigeration, pollution prevention, auxiliary steam machinery.
Objective:	To prepare candidates for MOT examinations for certificate of competency as Chief Engineer of a Motor-Driven Fishing Vessel or 4th Class Engineer Endorsed for Fishing Vessel Chief Engineer.

*If vacancies available, a fisherman with the required qualifications for Fishing Vessel Watchkeeper may enroll in this course & prepare for the MOT examinations for a Watchkeeping Engineer certificate.

DECKHAND OFFSHORE FLEET*

Location:	NS School of Fisheries, Pictou (E)
Prerequisites:	Good formal education an asset; experience as a fisherman the prime requisite.
Duration:	4 weeks, Fall, Winter or Spring
Description:	Rope work, wire work, net mending, bottom trawl, Marine Emergency & Safety.
Objective:	To train learners to become trawler deckhands for the Nova Scotia offshore fishing fleet.
Certificate:	Deckhand Certificate is awarded through the Atlantic Fisherman's Record Book Plan.

*A Beginner must complete 30 days at sea on an offshore trawler in order to sit the Deckhand examination.

FISHING BUSINESS PRACTICE AND RECORD-KEEPING

Location:	NS School of Fisheries, Off-campus (E)
Prerequisites:	Good basic education an asset; close association with the fishing industry is the prime requisite.
Duration:	3 weeks, Fall, Winter or Spring
Description:	Registering and insuring a boat, payroll, Income Tax, subsidies, financial assistance, keeping a record book, general business practices.
Objective:	To assist fishermen & their wives in learning skills & knowledge required to keep records & manage a small business proficiently.
Certificate:	NS Department of Fisheries Certificate of Accomplishment.

FISHING INCOME TAX UPDATE*

Location:	NS School of Fisheries, Off-campus (E)
Duration:	I week, Fall, Winter or Spring
Description:	Tax laws, deductions and remittances, forms and schedules, tax credits, Canada Pension, Unemployment Insurance, tax planning.
Objective:	To provide information on changes & adjustments in the Income Tax laws primarily affecting fishermen.
Certificate:	NS Department of Fisheries Certificate of Accomplishment.

*Must have already completed 'Fishing Business Practice and Record-Keeping'.

FISHING MASTER CLASS IV*

Location:	NS School of Fisheries, Pictou or Off-campus (E)
Prerequisites:	Good formal education an asset + at least 17 years of age + 12-months' sea service on voyages extending beyond smooth or partially smooth water limits on vessels of not less than 5 tons gross tonnage + valid MOT eyesight test certificate.
Duration:	7 weeks, Fall, Winter or Spring
Description:	Navigating instruments, chartwork & pilotage, navigation safety, general seamanship.
Objective:	To prepare fishermen for MOT examinations for Fishing Master Class IV certificate.

*MED I is offered in conjunction with Fishing Master Class IV course. MED I or II certificates + R/T license are required for this MOT certificate.

FISHING MASTER CLASS III*

Location:	NS School of Fisheries, Pictou (E)
Prerequisites:	Good formal education an asset + at least 18 years of age + not less than 24-months' sea service on voyages extending beyond smooth or partially smooth water limits on vessels of not less than 5 tons gross tonnage + valid MOT eyesight test certificate.
Duration:	12 weeks, Fall, Winter or Spring
Description:	Communications, navigating instruments, chartwork & pilotage, navigation safety, general ship knowledge, general seamanship.
Objective:	To prepare fishermen for MOT examinations for Fishing Master Class III certificate.

FISHING MASTER CLASS II*

Location:	NS School of Fisheries, Pictou (E)
Prerequisites:	Good formal education an asset + at least 19 years of age + not less than 24-months' sea service on voyages extending beyond smooth or partially smooth water limits on vessels of not less than 5 tons gross tonnage + valid MOT eyesight test certificate + Fishing Master Class III certificate.
Duration:	13 weeks, Fall, Winter & Spring
Description:	Communications, navigating instruments, chartwork & pilotage, navigation safety, meteorology, ship management, general ship knowledge, general seamanship.
Objective:	To prepare fishermen for MOT examinations for Fishing Master Class II certificate.

*MED II & SEN I certificates + R/T license are required for this MOT certificate. One of three weeks of MED II and two weeks of SEN I training are conducted at the Nova Scotia Nautical Institute (NSNI), in Halifax.

FISHING MASTER CLASS I*

Location:	NS School of Fisheries, Pictou (E)
Prerequisites:	Good formal education an asset + at least 20 years of age + not less than 12-months' sea service as officer in charge of the watch, while holding a certificate of competency as Fishing Master Class II, in vessels of not less than 25 tons gross tonnage, making voyages beyond smooth or partially smooth water limits + valid MOT eyesight test certificate.
Duration:	15 weeks
Description:	Communications, chartwork & pilotage, astro-navigation, navigation safety, meteorology, general ship knowledge, general seamanship.
Objective:	To prepare fishermen for MOT examinations for Fishing Master Class I certificate.

*MED II & SEN II certificates are required for this MOT certificate. SEN I & II certificates are awarded by NSNI, Halifax.

INSHORE FISHING OPERATIONS - BOTTOM TRAWLS

Location:	NS School of Fisheries, Pictou or Off-campus (E)
Prerequisites:	Good formal education an asset; experience as fisherman is the prime requisite.
Duration:	4-6 weeks, Fall, Winter or Spring
Description:	Rope & wire work, sea terms and fishing vessel knowledge, practical construction and repair of fishing gear, fishing methods, trouble-shooting, care of the catch.
Objective:	To provide fishermen with the knowledge & skill required to perform deck duties on all types of fishing vessels & to construct, maintain, operate & repair fishing gear.

INSHORE FISHING OPERATIONS - GILL NETS AND FISH TRAPS

Location:	NS School of Fisheries, Off-campus (E)
Prerequisites:	Good formal education an asset; experience as fisherman is the prime requisite.
Duration:	4-6 weeks, Fall, Winter or Spring
Description:	Basic repair and construction of gill nets and fish traps, rigging, deck equipment, trouble-shooting, care of the catch.
Objective:	To provide fishermen with the knowledge & skill required to perform deck duties on all types of fishing vessels & to construct, maintain, operate & repair fishing gear.

INSHORE FISHING OPERATIONS - LONG LINES AND GEAR

Location:	NS School of Fisheries, Pictou or Off-campus (E)
Prerequisites:	Good formal education an asset; experience as fisherman is the prime requisite.
Duration:	4-6 weeks, Fall, Winter or Spring
Description:	Long line materials, rigging and repairing long lines, vessel rigging, deck equipment, trouble-shooting, care of the catch.
Objective:	To provide fishermen with the knowledge & skill required to perform deck duties on all types of fishing vessels & to construct, maintain, operate & repair fishing gear.

INSHORE FISHING OPERATIONS - OTTER TRAWLS

Location:	NS School of Fisheries, Off-campus (E)
Prerequisites:	Good formal education an asset; experience as fisherman is the prime requisite.
Duration:	4-6 weeks, Fall, Winter or Spring
Description:	Basic repair and construction of otter trawls, vessel rigging, deck equipment, trouble-shooting, care of the catch.
Objective:	To provide fishermen with the knowledge & skill required to perform deck duties on all types of fishing vessels & to construct, maintain, operate & repair fishing gear.

INSHORE FISHING OPERATIONS - PURSE SEINES

Location:	NS School of Fisheries, Off-campus (E)
Prerequisites:	Good formal education an asset; experience as fisherman is the prime requisite.
Duration:	4-6 weeks, Fall, Winter or Spring
Description:	Basic repair and construction of purse seines, vessel rigging, deck equipment, trouble-shooting, care of the catch.
Objective:	To provide fishermen with the knowledge & skill required to perform deck duties on all types of fishing vessels & to construct, maintain, operate & repair fishing gear.

INSHORE FISHING OPERATIONS - SCOTTISH AND DANISH SEINES

Location:	NS School of Fisheries, Off-campus (E)
Prerequisites:	Good formal education an asset; experience as fisherman is the prime requisite.
Duration:	4-6 weeks, Fall, Winter or Spring
Description:	Basic repair & construction of seines, vessel rigging, deck equipment, trouble-shooting, care of the catch.
Objective:	To provide fishermen with the knowledge & skill required to perform deck duties on all types of fishing vessels & to construct, maintain, operate & repair fishing gear.

INTRODUCTION TO INSHORE FISHING OPERATIONS*

Location:	NS School of Fisheries, Pictou (E)
Prerequisites:	Experience on-board an inshore fishing vessel.
Duration:	4 weeks, Winter
Description:	Knots, splicing, mending, individualized training.
Objective:	To provide fishermen with the knowledge & skills required to perform deck duties on all types of fishing vessels & to construct, maintain, operate & repair fishing gear.

*Courses of similar content are available through the Extension Program.

MARINE EMERGENCY DUTIES I (MED I)*

Location:	NS School of Fisheries, Pictou or Off-campus (E)
Prerequisites:	Good formal education an asset; experience as a fisherman the prime requisite & trainees must have experience on a fishing vessel.
Duration:	I week, Fall, Winter or Spring
Description:	Lifesaving appliances, firefighting, rescue, survival and First Aid.
Objective:	To provide basic safety instruction to operators of small fishing vessels in Nova Scotia.
Certificate:	MOT training certificate EXN-24, (MED I).

*This certificate is a requisite for Fishing Master Class III & IV certificates.

MARINE EMERGENCY DUTIES II (MED II)*

Location:	NS School of Fisheries, Pictou and NSNI, Halifax (E)
Prerequisites:	Must be familiar with shipboard routine and placement & safe operation of necessary equipment.
Duration:	3 weeks, Fall, Winter or Spring
Description:	Lifesaving appliances, firefighting, rescue, survival and First Aid.
Objective:	To provide safety instruction to operators of larger fishing vessels in Nova Scotia.
Certificate:	MOT - MED II certificate.

*This course is a requisite for Fishing Master Class I & II, as well as Fishing Chief and 4th Class Engineer's certificates. One week of firefighting is offered at NSNI, Halifax.

MARINE GAS AND DIESEL ENGINE MAINTENANCE

Location:	NS School of Fisheries, Pictou or Off-campus (E)
Prerequisites:	Good basic education an asset; must be a fisherman with his own boat or a fisherman's helper who is mechanically inclined.
Duration:	4 weeks, Fall, Winter or Spring
Description:	Engine operation, electrical systems, engine tests and tune-ups, marine transmissions, fuel systems.
Objective:	To teach fishermen how to maintain their boats' gas & diesel engines in good condition.
Certificate:	NS Department of Fisheries Certificate of Accomplishment.

PRE-SEA TRAINING - INTRODUCTION TO FISHERIES

Location:	NS School of Fisheries, Pictou (E)
Prerequisites:	Good formal education an asset; some experience on a fishing vessel would also help students to understand phases of course.
Duration:	12 weeks, Fall, Winter and Spring
Description:	Fishing gear, navigation, sea safety, engineering, R/T.
Objective:	To introduce young people to the many career opportunities in the Atlantic Canada fishery by giving them a general overview of the industry.
Certificate:	NS Department of Fisheries Certificate of Accomplishment + Federal Department of Communications Radio/Telephone Operator's license + MED I certificate from MOT.

REFRIGERATION*

Location:	NS School of Fisheries, Pictou or Off-campus (E)
Duration:	4 weeks
Description:	Theory of a refrigeration cycle, types and application of various compression units, maintenance and repair.
Objective:	To provide students with knowledge & skills required to recognize & correct common refrigeration problems.
Certificate:	NS Department of Fisheries Certificate of Accomplishment.

*Introductory to Watchkeeping duties and preparation for writing 4th Class Watchkeeping ticket after time in refrigeration work is established.

TRAWLERMAN OFFSHORE FLEET*

Location:	NS School of Fisheries, Pictou (E)
Prerequisites:	Good formal education an asset; experience as a fisherman the prime requisite.
Duration:	5 weeks, Fall, Winter or Spring
Description:	Seamanship, fishing gear, care of the catch, shipboard personal hygiene, safety, First Aid.
Objective:	To train deckhands to become trawlermen for the Nova Scotia offshore fishing fleet.
Certificate:	Trawlerman's Certificate through Atlantic Fisherman's Record Book Plan.

*Beginner must complete 270 sea days on offshore trawler before sitting Trawlerman's examination.

WATCHKEEPING ENGINEER OF A MOTOR-DRIVEN FISHING VESSEL

Location:	NS School of Fisheries, Pictou (E)
Prerequisites:	Good formal education an asset + must be at least 18 years of age + must have previous experience in an engine room + must have served 12 months on regular watch as engineer on motor ship of not less than 56 kilowatts propulsion power.
Duration:	8 weeks, Fall (one week comprises MED I training)
Description:	Marine diesel engines - main & auxiliary, shafting & propellers, marine auxiliary systems, bilge, ballast and domestic pumping systems, practical operation of engine room equipment, engine room safety.
Objective:	To prepare students for MOT examinations for Watchkeeping Engineer certificate + MED I certificate.

B. PLANT WORKERS

POINT-OF-SALE FISH GRADER

Location:	NS School of Fisheries, Pictou or Off-campus (E)
Duration:	2 weeks
Description:	**Week I** - In-class lecture and use of film to train candidates how to sample and determine grades of landed groundfish at the point of sale, calculate percentages, maintain appropriate records. **Week II** - On-the-job practical training to examine vessels, landing sites and vehicles for sanitation, maintain relationships with fishermen and fish buyers.
Objective:	To train potential point-of-sale graders to grade landed quality of groundfish.

C. MANAGEMENT

No courses offered.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

CERTIFICATE OF EFFICIENCY AS LIFEBOATMAN

Location:	NS School of Fisheries, Pictou (E)
Prerequisites:	Must be familiar with shipboard routines & placement of necessary equipment.
Duration:	3 days, Fall, Winter or Spring
Description:	Lifesaving appliances and First Aid.
Objective:	To prepare students for MOT examinations for Certificate of Efficiency as Lifeboatman.

St. Francis Xavier University

Extension Department
St. Francis Xavier University
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Coady International Institute
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The function of the Extension Department at St. Francis Xavier University is to serve as an agency for developing and co-ordinating adult education programs in northeastern Nova Scotia. This is an area in which fishing is the primary industry. Through the Extension Department, the University provides a number of fieldworkers who are strategically located throughout the Province and are available to work with fishermen on either an individual basis or in small groups.

The Coady International Institute at St. Francis Xavier University co-operates with several Canadian-based agencies, including the Nova Scotia Department of Fisheries, in developing overseas training activities. Most recently it has provided technical training in modern fisheries technology for fishermen belonging to a number of fisheries co-operatives in Belize.

A. FISHERMEN

Short seminars or workshops are available from the Extension Department on request and provide motivational and awareness training. Assistance is also available to fishermen wanting to form co-operatives or local community corporations. In addition, the Extension Department provides assistance in organizing and administering regional conferences dealing with issues of concern to local area fishermen.

Courses from the Coady International Institute are offered for fishermen from developing countries through the Canadian International Development Agency (CIDA). In some cases local fishermen may be permitted to participate in these programs.

B. PLANT WORKERS

No courses offered.

C. MANAGEMENT

A number of management training certificate programs are available from the Extension Department. Managers in the fishing industry should contact the Extension worker in the local area. In some cases these these courses can be offered through a distance education program.

Management training from the Coady International Institute is offered to fishing industry managers from developing countries through the Canadian International Development Agency (CIDA). In some cases local fisheries managers may be permitted to participate in these programs.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

No courses offered.

IV. PRINCE EDWARD ISLAND

FISHERIES AND MARINE—RELATED PROGRAMS AND COURSES:
DEGREES; MOT CERTIFICATE PREPARATION, DIPLOMAS, CERTIFICATES OF COMPLETION OR ACCOMPLISHMENT (CC) AND VOCATIONAL CERTIFICATES (VC)

	Degrees	MOT Certificate Preparation	Diploma	CC or VC
Holland College Waterfront Centre	None	*Nautical Science Options:* CN I & II; Command Endorsement; Fishing Master 1, 2, 3, 4; [Coastal Pilotage: Master of a Small Craft & Master of a Small Passenger Craft]; MED I & II; Master Mariner; ON I & II; SEN I & II; Watchkeeping Mate *Marine Engineering Options:* Chief Engineer of a Motor-Driven Fishing Vessel; [Pre-Employment Marine Engineering—Pre-Marine Engineer Class 4]; Marine Engineer Class 1, 2, 3, 4; MED I & II; Watchkeeping Engineer of a Motor-Driven Fishing Vessel	None	Aquaculture Technology (CC); Gas & Diesel Engines—Pre-Employment (CC)

IV. PRINCE EDWARD ISLAND

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C1N 1A9

Telephone (902) 436-2215

In 1972 the present school was opened, offering a wide variety of courses to fishermen and mariners including a new course in diesel engines. The Centre was also approved by the MOT as an official examination center. In 1977 the Prince Edward Island Marine and Fisheries Training Centre became part of Holland College and is now known as Holland College Waterfront Centre.

The facility has been designed to accommodate diversified training programs developed to meet the needs of the marine and fisheries industries. These training programs are offered in areas such as the following:

General Professional Training

— Inshore Fishing
— Marine Safety for Fishermen
— Boat Building

Ministry of Transport Certification

— Nautical Science Options (Fishing Master & Merchant Marine)
— Marine Engineering Options

Adult Education/Extension Courses

— Fishing Nets & Gear
— Fishing Techniques
— General Education

The training programs offered are determined by the Extension Division of the Provincial Department of Fisheries in collaboration with Employment and Immigration Canada and Holland College. These agencies assess training needs to insure that meaningful courses are offered. Employment and Immigration Canada funded courses offered to fishermen and processors during 1983 including Nets and Gear, Retort Operation and Quality Control.

Some of the courses at Holland College Waterfront Centre may be given on an extension basis provided there is a suitable location where needs exist. New courses can be designed to meet any marine or fishing requirement if the demand is sufficient.

HOLLAND COLLEGE WATERFRONT CENTRE
PRINCE EDWARD ISLAND

ENGINEERING

Seaman

12-months' sea time

Course: Watchkeeping Engineer (varying length)

MOT Examination & Certification

36-months' sea time

Course: Chief Engineer of a Motor-Driven Fishing Vessel (varying length)

MOT Examination & Certification

N.B. Length of courses and prerequisites can vary according to candidate's previous experience and aptitude. Candidates should familiarize themselves with appropriate MOT regulations and obtain valid MOT eyesight certificate and MOT certification of sea time served.

Course: Pre-employment Marine Engineering (36 weeks)

27-months' sea time

Course: 4th Class Marine Engineer (12-25 weeks) Seamen with 36-months' sea time may enter this course.

MOT Examination & Certification

12-months' sea time

Course: Marine Engineer 3rd Class (14-24 weeks)

MOT Examination & Certificaiton

14-months' sea time

Course: Marine Engineer 2nd Class (20-50 weeks)

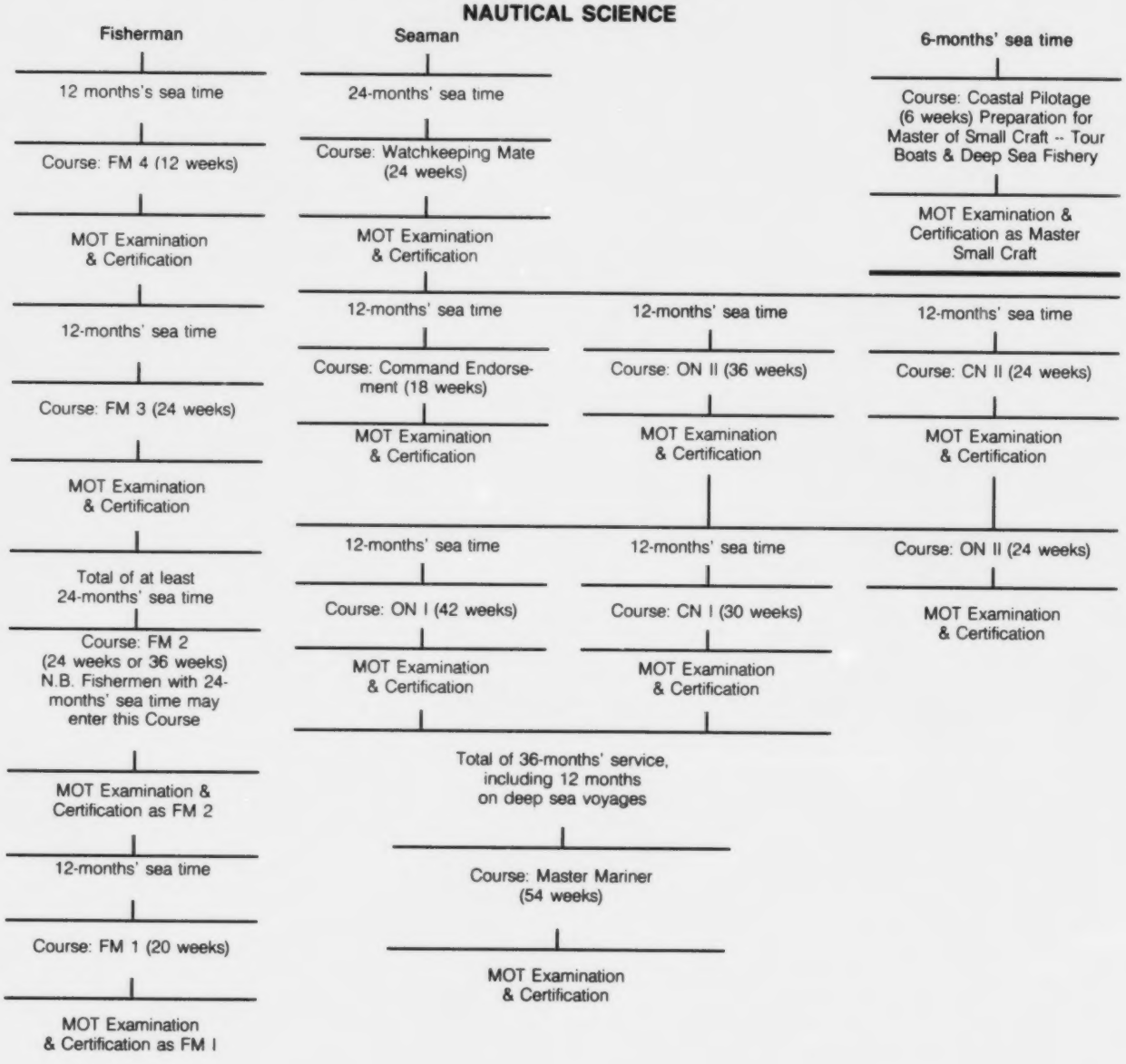
MOT Examination & Certification

18-months' sea time

Course: Marine Engineer 1st Class (20-50 weeks)

MOT Examination & Certification

HOLLAND COLLEGE WATERFRONT CENTRE
PRINCE EDWARD ISLAND
NAUTICAL SCIENCE


Fisherman
12 months's sea time
Course: FM 4 (12 weeks)
MOT Examination & Certification
12-months' sea time
Course: FM 3 (24 weeks)
MOT Examination & Certification
Total of at least 24-months' sea time
Course: FM 2 (24 weeks or 36 weeks) N.B. Fishermen with 24-months' sea time may enter this Course
MOT Examination & Certification as FM 2
12-months' sea time
Course: FM 1 (20 weeks)
MOT Examination & Certification as FM I
Seaman
24-months' sea time
Course: Watchkeeping Mate (24 weeks)
MOT Examination & Certification
12-months' sea time
Course: Command Endorsement (18 weeks)
MOT Examination & Certification
12-months' sea time
Course: ON I (42 weeks)
MOT Examination & Certification
12-months' sea time
Course: ON II (36 weeks)
MOT Examination & Certification
12-months' sea time
Course: CN I (30 weeks)
MOT Examination & Certification
Total of 36-months' service, including 12 months on deep sea voyages
Course: Master Mariner (54 weeks)
MOT Examination & Certification
6-months' sea time
Course: Coastal Pilotage (6 weeks) Preparation for Master of Small Craft -- Tour Boats & Deep Sea Fishery
MOT Examination & Certification as Master Small Craft
12-months' sea time
Course: CN II (24 weeks)
MOT Examination & Certification
Course: ON II (24 weeks)
MOT Examination & Certification

N.B. Length of courses and prerequisites can vary according to candidate's previous experience and aptitude. Candidates should familiarize themselves with appropriate MOT eyesight certificate and MOT certification of sea time served.

A. FISHERMEN

BOAT ENGINE EMERGENCY REPAIRS

Location:	Waterfront Centre, Summerside or Off-campus (E)
Prerequisites:	Must be a commercial inshore fisherman + be mechanically inclined.
Duration:	2 weeks (10 days)
Description:	Hand tools and basic test instruments, internal combustion engines, ignition and electrical systems, fuel systems, cooling systems, preventative maintenance, trouble-shooting techniques, tune-ups, emergency repairs, search and rescue demonstrations.
Objective:	To provide instruction for commercial inshore fishermen in performing preventative maintenance, engine tune-ups, trouble-shooting and emergency repairs.

BOAT REFITTING AND REPAIR

Location:	Waterfront Centre, Off-campus (E)
Prerequisites:	Must be a commercial fisherman + own his own boat. Preference will be given to persons under 60 years of age.
Duration:	9 weeks (45 days)
Description:	Safety, hand tools, machine working, boat carpentry, boat shop repairs, repairs, painting and finishing, machinery installation, house construction (cabin).
Objective:	To provide instruction for commercial fishermen in repair and maintenance of inshore fishing boats of common hull types, and to assist fishermen in developing necessary skills to perform repairs and carry out a maintenance program on their fishing boats.

CHIEF ENGINEER OF A MOTOR-DRIVEN FISHING VESSEL

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	48-months' sea time + at least 20 years of age.
Duration:	Varies with experience of candidate
Description:	Mathematics, mechanics, engineering, machine systems, electrical systems.
Objective:	To prepare candidates for MOT examinations for Chief Engineer of a Motor-Driven Fishing Vessel certificate.

COASTAL PILOTAGE*

Location:	Waterfront Centre, Summerside or Off-campus (E)
Prerequisites:	Must be presently employed as a fisherman, or intend to become a fisherman + be at least 17 years of age + have aptitude and demonstrated interest in this occupational area. Candidates preparing to sit the MOT examinations must have at least 6-months' sea time + pass sight and colour blindness test + submit a character reference.
Duration:	6 weeks (30 days)
Description:	General fisheries information, navigation aids, chartwork, marine science, basic navigation, seamanship, safety at sea, equipment & engine maintenance, bookkeeping, field trips, MED I.
Objective:	To provide training for fishermen or potential fishermen who desire to improve their skills in and knowledge of the fishing industry, marine science, basic navigation, seamanship, safety at sea, and equipment maintenance; and to prepare candidates for MOT examinations for Master of a Small Craft and Master of a Small Passenger Craft certificate of competency.

*Course also prepares candidates to sit the MOT examinations for Master of a Small Craft and Master of a Small Passenger Craft (Temporary certificate up to 40 tons).

ELECTRONIC FISHING AIDS CARE AND OPERATION

Location:	Waterfront Centre, Summerside (E)
Duration:	10 days
Description:	Use and maintenance of electronic fishing aids, including: Loran, Decca, Radar, Fish Finder, Marine Radio and Compass.
Objective:	To provide fishermen and other persons connected with the fishing industry, with the ability to use to maximum efficiency the electronic equipment found on-board most fishing boats.

FISHING MASTER CLASS IV

Location:	Waterfront Centre, Summerside or Off-campus (E)
Prerequisites:	12-months' sea time on a vessel of not less than 5 tons gross tonnage + pass an eyesight and colour blindness test + at least 17 years of age.
Duration:	12 weeks (60 days)
Description:	Safety, MED I, chartwork and pilotage, general seamanship, navigating instruments.
Objective:	To prepare candidates for MOT examinations for Fishing Master Class IV certificate of competency. Successful candidates may be employed as Masters or Deck Officers aboard fishing vessels.

FISHING MASTER CLASS III

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	At least 24-months' sea time in a qualifying capacity on deck of a ship of 5 tons gross tonnage or more + pass an eyesight and colour blindness test + at least 18 years of age.
Duration:	24 weeks (120 days)
Description:	Safety, MED I or II, general ship knowledge, rules and regulations, communications, navigating instruments, chartwork and pilotage, general seamanship.
Objective:	To prepare candidates for MOT examinations for Fishing Master Class III certificate of competency. Successful candidates may be employed as Mates or Masters on a fishing vessel.

FISHING MASTER CLASS II

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	At least 24-months at sea in a qualifying capacity on-board a fishing vessel of 5 tons gross tonnage or more + at least 19 years of age.
Duration:	24 weeks (120 days)
Description:	Chartwork, meteorology, ship management, general seamanship, MED II, communications, navigation safety, navigating instruments.
Objective:	To prepare candidates for MOT examinations for Fishing Master Class II certificate of competency. Successful candidates may be employed as 1st Mate or as Master on a fishing vessel.

FISHING MASTER CLASS I

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	Must have completed not less than 12-months' sea time as officer in charge of the watch while holding a certificate of competency, in vessels of not less than 25 tons gross tonnage + at least 20 years of age.
Duration:	20 weeks (100 days)
Description:	Chartwork, navigation safety, meteorology, general ship knowledge, general seamanship, navigation, communications.
Objective:	To prepare candidates for MOT examinations for Fishing Master Class I certificate of competency. Successful candidates may be employed as Master on a fishing vessel.

GAS AND SMALL MARINE ENGINE MAINTENANCE AND REPAIR

Location:	Waterfront Centre, Off-campus (E)
Prerequisites:	Must be a commercial fisherman + have own boat + be mechanically inclined.
Duration:	8 weeks (40 days)
Description:	Use of hand tools & measuring instruments, principles of internal combustion and compression ignition engines, engine test, tune-ups, repairs & installation, fuel, electric & ignition systems, main transmission & drive systems, preventative maintenance, trouble-shooting.
Objective:	To instruct fishermen in the ability to conduct an efficient boat engine maintenance and repair program required in inshore fishing.

HYDRAULIC (BASIC)

Location:	Waterfront Centre, Off-campus (E)
Prerequisites:	Should be a fisherman or person whose work is directly involved in the operation and/or maintenance of hydraulic systems.
Duration:	60 hours (2 weeks)
Description:	Hydraulic pumps, motors, controlling valves, reservoirs, filters & oil coolers, hydraulic & mechanical gears, clutches, tubing and fittings, hydraulic oils, trouble-shooting, fishing application of hydraulics.
Objective:	To provide fishermen with knowledge of the advantage, operation, installation, maintenance and trouble-shooting of hydraulic-powered fishing gear.

HYDRAULIC POWER TRANSMISSION FOR FISHERMEN

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	Must be a commercial fisherman with an aptitude for this course.
Duration:	30 hours - Part-time
Description:	Pumps, reservoirs, filters, motors, control valves, hydraulic oils, trouble-shooting, marine application of hydraulics.
Objective:	To provide commercial inshore fishermen with sufficient theory and practical work to install, operate and maintain their hydraulic-powered gear.

INSHORE NETS AND GEAR

Location:	Waterfront Centre, Summerside or Off-campus (E)
Prerequisites:	Must be a commercial inshore fisherman wishing to acquire skills taught in this course.
Duration:	6 weeks (30 days)
Description:	Use, care & maintenance of twine, cutting and mending, wire and rope splicing, design and maintenance of gill nets, longlines, traps & seines, mechanical aids used in setting and hauling fishing gear.
Objective:	To teach fishermen the skills required to repair & build nets and traps used in their fishing operations.

MARINE EMERGENCY DUTIES II (MED I AND II)*

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	Should be employed on-board a ship or be interested in obtaining employment aboard a ship + at least 18 years of age + free from any physical or other disability + grade 8 (preferred but not essential).
Duration:	15 days
Description:	Lifeboat handling, practices and procedures, lifesaving appliances, water safety, First Aid, firefighting, rescue, survival & emergency procedures.
Objective:	To provide a high standard of training for Canadian Seamen in lifesaving appliances, basic firefighting, First Aid and survival techniques.

*Upon successful completion the student is awarded a MOT MED II certificate.

MARINE SAFETY FOR FISHERMEN

Location:	Waterfront Centre, Off-campus (E)
Prerequisites:	Must be fisherman engaged in the fishing industry.
Duration:	2 weeks (10 days)
Description:	Lifesaving appliances, water safety, rescue, survival & emergency procedures, First Aid, fundamental firefighting knowledge and techniques.
Objective:	To provide a high standard of training for PEI fishermen in lifesaving appliances, basic firefighting, First Aid and survival techniques.

NET MAINTENANCE AND REPAIR (BASIC)*

Location:	Waterfront Centre, Summerside or Off-campus (E)
Duration:	4 weeks (20 days)
Description:	Use, care & maintenance of twine, cutting & mending of nets, care and maintenance of ropes, rope splicing, knots and hitches, hanging, mending and repair of various nets, (such as cod, herring, and mackerel gill nets), rigging and repairing cod and eel traps & small box nets.
Objective:	To assist individuals (particularly female helpers or wives) in learning the skills required to repair, by knitting and patching, common inshore fishing gear including nets and lobster pots.

*Course aimed principally at female participants in net maintenance.

PAIR SEINE COURSE

Location:	Waterfront Centre, Summerside or Off-campus (E)
Prerequisites:	Must be a commercial fisherman + wish to acquire knowledge of building, repairing and using all types of pair seines.
Duration:	8 weeks (40 days)
Description:	Cutting and mending twine, blackboard work on tapers and measurements, replacing net sections, advantages and disadvantages of various natural and synthetic fibers, wire and rope splicing.
Objective:	To teach commercial fishermen to build and repair nets used in pair seining and to be able to operate a pair seine effectively.

PRACTICAL DESIGN AND MODIFICATION OF FISHING NETS AND GEAR (ADVANCED)

Location:	Waterfront Centre, Summerside or Off-campus (E)
Prerequisites:	Must be a bona fide fishermen in good physical condition + basic net and gear course preferred, but candidates with a good practical knowledge of net mending will be given consideration.
Duration:	8 weeks (40 days)
Description:	Practical design of various types of nets, modification of nets being used in PEI fishing, net construction, building nets to plan (trawls and gill nets).
Objective:	To prepare trainees for employment on an inshore fishing boat that is converted to dragging, or for employment as fishermen on a deep sea dragger, or to operate their own inshore draggers more efficiently.

RECORD-KEEPING FOR FISHERMEN*

Location:	Waterfront Centre, Summerside or Off-campus (E)
Duration:	10 days
Description:	Maintaining complete records of transactions affecting assets, liabilities, equity, income, expense, Income Tax, payroll accounts, etc. Setting objectives and making decisions through the use of financial data. Identifying markets and systems of marketing in the fishing industry.
Objective:	To prepare fishermen and fishermen's wives to perform basic bookkeeping functions in maintaining their financial records and to use financial data in operating a fishing business.

*Course for practicing fishermen or wives of practicing fishermen.

RECORD-KEEPING FOR FISHERMEN (ADVANCED)*

Location:	Waterfront Centre, Off-campus (E)
Prerequisites:	Must be practicing fishermen, or wife of a fisherman + should have basic course in record-keeping or at least grade 8 education, or equivalent.
Duration:	20 days
Description:	Instruction in getting maximum value from earned income, making long-range planning for business through use of financial data, making correct business decisions based on fisherman's financial records.
Objective:	To teach fishermen and fishermen's wives how to keep proper records of their assets and liabilities, work out balance sheets, and have up-to-date knowledge of their fishing businesses.

*Course for fishermen or the wives of fishermen.

SMALL BOAT CONSTRUCTION TECHNIQUES AND REPAIR

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	Must be practicing fishermen less than 60 years of age.
Duration:	12 weeks (60 days)
Description:	Safety, hand tools, machine working, boat carpentry, boat repairs, small boat construction, machinery installation.
Objective:	To provide fishermen with the knowledge and basic skills required to build small wooden boats, and to repair and replace damaged or decayed structural members, such as stems, deadwood, frames, sternposts and planking.

TUNA BOAT OPERATION - PRACTICAL

Location:	Waterfront Centre, Off-campus (E)
Prerequisites:	Candidates must have a valid Temporary 40 Ton Masters certificate + intend to be engaged in the tuna fishing industry as a fishing skipper or mate. Successful completion of the one-week 'Tuna Boat Operation-Theoretical' course is also required.
Duration:	1 week (30 hours)
Description:	Inspection, operation and maintenance of the boat, safety equipment, fishing equipment & accessories, instruction of charter party members in use of safety equipment, emergency procedures & techniques of tuna fishing, care, use and maintenance of tuna fishing equipment, tuna fishing techniques, such as locating, laying bait for, and handling tuna.
Objective:	To provide 30 in-boat practical lessons in the techniques of tuna fishing and tuna boat operation. The course is designed as a pre-employment course for individuals who require formal training in all aspects of tuna boat operations, in preparation for employment in the tuna fishing industry as either a fishing skipper or mate.

TUNA BOAT OPERATION - THEORETICAL

Location:	Waterfront Centre - Off-campus (E)
Prerequisites:	Candidates must hold a valid Temporary 40 Ton Masters certificate + intend to be engaged in the tuna industry as a fishing skipper or mate.
Duration:	30 hours
Description:	Inspection and equipment requirements for sport fishing vessels, selection, use and maintenance of tuna fishing equipment, gear & accessories, tuna fishing and boat handling techniques, International Game Fish Association Regulations, general biological information on the bluefin tuna, project hospitality, meeting the needs of the charter party.
Objective:	To provide 30 in-boat theoretical lessons in the techniques of tuna fishing and tuna boat operation. The course is designed as a pre-employment course for individuals who require formal training in all aspects of tuna boat operations in preparation for employment in the tuna fishing industry as either a fishing skipper or mate.

WATCHKEEPING ENGINEER OF A MOTOR-DRIVEN FISHING VESSEL

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	12-months' sea time + at least 20 years of age.
Duration:	Varies with experience of candidate
Description:	Engineering, machine systems, safety.
Objective:	To prepare candidate for MOT examinations for Watchkeeping Engineer of a Motor-Driven Fishing Vessel certificate.

NOTE: In addition to the courses listed above, Holland College Waterfront Centre will also provide workshops and seminars of 1 - 5 days duration for fishermen on the following topics:

FISH HANDLING FOR FISHERMEN

SALT FISH PRODUCTION FOR FISHERMEN PACKERS

B. PLANT WORKERS

CAN SEALER MAINTENANCE*

Location:	Waterfront Centre, Summerside or Off-campus (E)
Prerequisites:	Can sealer experience and/or mechanical ability.
Duration:	5 days
Description:	Basic machine maintenance, identification of unit parts, sealer head & chuck adjustments, machine tear downs, trouble-shooting, and other topics related to can sealer maintenance & operation.
Objective:	To train personnel in the maintenance and operation of can sealers, and to upgrade those presently working in this capacity.

*Course offered by Holland College in conjunction with major can manufacturers.

POINT-OF-SALE GRADING - GROUNDFISH

Location:	Waterfront Centre, Summerside or Off-campus (E)
Prerequisites:	Previous experience in the Fish Industry.
Duration:	4 weeks (2 weeks - institutional; 2 weeks - on-site)
Description:	Factors affecting fish quality, fish spoilage & control, fish grading exercises, fish biology (species identification), basic microbiology, fish filleting, fish catching & handling, sampling, sanitation & hygiene, DFO Quality Improvement Program & National Inspection Program.
Objective:	To provide trained personnel for the Fish Industry who are prepared to interpret and apply the DFO point-of-sale grade standards.

SALT FISH PRODUCTION AND GRADING

Location:	Waterfront Centre, Summerside or Off-campus (E)
Duration:	2 weeks
Description:	Care of fish at sea, transportation & handling, demonstrations and practical work on splitting, cleaning, washing & naping, types of salt, effects of salt on fish, various methods of salting and practical work, yields, bacteria & spoilage problems, sanitation, identification of defects & application of the DFO salt fish grade standards.
Objective:	To assist persons involved in the salt fish industry in further understanding of the factors involved in producing top quality salted products, and to prepare personnel to produce consistently top quality salt fish products.

THERMAL PROCESSING AND CONTAINER CLOSURE EVALUATION

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	Previous experience in the food industry.
Duration:	5 days
Description:	General microbiology, product preparation, thermal processing, retort & cooker operations, documentation & records, container integrity, Federal & Provincial requirements.
Objective:	To train and/or upgrade personnel in the maintenance and operation of retorts used in the processing of low-acid foods and meat products.

NOTE: In addition to the courses listed above, Holland College will also provide workshops and seminars of 1-5 days duration for plant workers on the following topics:

FISH HANDLING FOR PLANT EMPLOYEES
GENERAL PROCESSING TECHNIQUES
PERSONAL HYGIENE
SANITATION/CLEANING

C. MANAGEMENT

END-OF-LINE GRADING GROUNDFISH

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	Previous experience in the Fish Industry.
Duration:	7 days
Description:	Interpretation & practical application of the established grading standards of the DFO Quality Improvement Program, sampling, measurement techniques, inspection criteria & lot grade determinations.
Objective:	To provide trained personnel for the Fish Industry to oversee the grading of fresh and frozen groundfish products.

FISHERIES TECHNOLOGY

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	Grade 12, or equivalent.
Duration:	2 years
Description:	Identify fish species, biology and processing implications, assess and determine fishing, unloading & transportation techniques, process all common species of fish and shellfish, preserve fish by freezing, smoking, canning, pickling, salting and marinating, implementing quality control and sanitation programs, supervision, production planning and marketing, interpreting and applying Federal and Provincial fisheries regulations.
Objective:	To assist students in acquiring those skills required by supervisory and quality control personnel in a variety of marine and fisheries careers.

INTRODUCTORY MICROBIOLOGY FOR THE FOOD INDUSTRY

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	Must be Quality Control personnel in the food industry.
Duration:	4 weeks
Description:	Introduction to microbiology & its relationship to the food industry, recording & interpreting results, introduction to a lab & lab techniques, demonstrations & practical work, explanation & purpose of various tests (gram stain, swabs, colliforms & others), setting up a small lab.
Objective:	To introduce Quality Control personnel to microbiology in the food industry and its application to assessing the quality of food products.

QUALITY CONTROL PROGRAMMING

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	Previous experience in the Fish Industry.
Duration:	6 weeks
Description:	Principles of quality assurance, components of a Quality Control program, company standards & government regulations, production & process control, quality verification, methods of quality assessment, fish spoilage, sanitation, in-plant cleaning, factors affecting quality, laboratory testing, record-keeping & quality costs.
Objective:	To assist fish industry personnel in acquiring skills required to develop and implement Quality Control programs.

SANITATION AND HANDLING TECHNIQUES - SEAFOOD MERCHANTS

Location:	Waterfront Centre, Summerside (E)
Duration:	5 days
Description:	Quality assessment, handling & storage, sanitation, basic processing, regulations.
Objectives:	To upgrade skills required of personnel involved in any aspect of the fish retail business, and to assist seafood merchants in identifying fish quality and improving their operations.

NOTE: In addition to courses listed above, Holland College Waterfront Centre will also provide workshops and seminars of 1-5 days duration on the following topics:

COMPUTER APPLICATION IN SEAFOOD PROCESSING
CONTAINER EVALUATION
GOOD MANUFACTURING PRACTICES
PRODUCTION AND SUPERVISION

D. FISHERIES AND MARINE-RELATED INDUSTRIES

AQUACULTURE TECHNOLOGY

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	High school graduation + courses in chemistry and biology preferred. Mature students with related work experience will be considered.
Duration:	48 weeks (modular program)*
Description:	Fish & shellfish physiology, health and nutrition, operation & maintenance of facilities, basic laboratory analysis, salmonid & shellfish culture techniques, financial & business management.
Objective:	To provide trained persons for the aquaculture industry, and to upgrade skills and knowledge of persons already employed in the aquaculture industry.

*Instructional materials are presented in modules to provide a flexible curriculum and to allow persons already employed in aquaculture industry to enroll in only pertinent modules. Completion of all modules combined with on-the-job experience will lead to an Aquaculture Technician occupational profile.

AUTOMATIC RADAR PLOTTING AID (ARPA)

Location:	Waterfront Centre, Summerside (E)
Duration:	Given when student demand warrants
Description:	Use of ARPA radar, accuracy compared to normal radar, errors in the ARPA radars.
Objective:	To train deck officers in the techniques of anti-collision.

BOAT BUILDING

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	Grade 10, or equivalent preferred or background in woodworking experience.
Duration:	36 weeks (180 days)
Description:	Use of hand tools, electric and power tools and machinery, practical application of boat carpentry, building half models to scale, knowledge of blueprint reading, building a plywood boat, building an inshore fishing boat, basic introduction to plastic boat building.
Objective:	To provide instruction in skills for building inshore fishing boats, and to provide the necessary skills and information for persons entering employment in shipyards, boatyards, marinas and other marine industries.

BOAT BUILDING-ADVANCED

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	Grade X, or equivalent, preferred + basic training in boat building or persons with experience with boat building firms who want to upgrade their knowledge of boat building. Prospective candidates should be interviewed by the course instructor.
Duration:	30 weeks (150 days)
Description:	Advanced reading of blueprints, designing and layouts, building a 32-foot inshore fishing boat, machinery installation and various types of fittings, fibreglass techniques, field trips.
Objective:	To provide instuction in the design and construction of inshore fishing boats and pleasure boats of common hull design, and to prepare and upgrade trainees for employment in the boat building industry.

COASTAL NAVIGATION II (CN II)

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	Watchkeeping Mate certificate + 12-months' sea service. (Certificate will not be issued until candidate reaches 19 years of age.)
Duration:	Approximately 24 weeks
Description:	Communications, industrial safety and ship management, ship construction and cargo, general seamanship and stability.
Objective:	To prepare candidates for the MOT examinations for CN II certificate of competency.

COASTAL NAVIGATION I (CN I)

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	ON II or CN II certificate + 12-months' sea service while holding ON II or CN II certificate of competency. (Certificate not issued until candidate reaches 21 years of age.)
Duration:	Approximately 30 weeks
Description:	Chartwork and pilotage, navigation safety, ship management, cargo, general seamanship, meteorology, engineering knowledge.
Objective:	To prepare candidates for MOT examinations for CN I certificate of competency.

COMMAND ENDORSEMENT

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	3-years' sea service + Watchkeeping Mate certificate. (Certificate not issued until candidate reaches 21 years of age.)
Duration:	Approximately 18 weeks
Description:	Chartwork and pilotage, meteorology, ship management, general seamanship.
Objective:	To prepare candidates for MOT examinations for Command Endorsement certificate of competency.

DIESEL ENGINE MECHANIC-UPGRADING

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	Must be employed as a mechanic or in an ancillary position requiring knowledge of diesel engine operation and tune-up.
Duration:	48 hours (8 days), Part-time
Description:	Combustion chambers, injection systems, governors, trouble-shooting diesel engines, diesel engine tune-up.
Objective:	To instruct and upgrade mechanics in properly diagnosing, adjusting and repairing problems which develop in a diesel engine.

MARINE ENGINEER, 4TH CLASS

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	36-months' engine room sea time or combination acceptable to Marine Safety Division, MOT, achieved after 15th birthday + at least 20 years of age.
Duration:	12-25 weeks depending on academic achievement level and experience of individual trainees
Description:	Engineering knowledge related to marine propulsion systems.
Objective:	To prepare candidates for MOT examinations for Marine Engineer 4th Class certificate of competency.

MARINE ENGINEER, 3RD CLASS

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	48-months' engine room sea time or combination acceptable to Marine Safety Division, MOT, achieved after 15th birthday ÷ at least 21 years of age.
Duration:	14-25 weeks depending on academic achievement level and experience of individual trainees
Description:	Engineering knowledge related to marine propulsion systems, practical mathematics, mathematics.
Objective:	To prepare candidates for MOT examinations for Marine Engineer 3rd Class certificate of competency.

MARINE ENGINEER, 2ND CLASS

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	60-months' engine room sea time or combination acceptable to Marine Safety Division, MOT, achieved after 15th birthday + at least 21 years of age.
Duration:	20-50 weeks depending on academic achievement level and experience of individual trainees
Description:	Engineering knowledge, applied mechanics, heat and heat engines, engineering drawing, electrotechnology, elementary naval architecture.
Objective:	To prepare candidates for MOT examinations for Marine Engineer 2nd Class certificate of competency.

MARINE ENGINEER, 1ST CLASS

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	A valid 2nd Class MOT certificate of competency + 18-months' sea time after receiving this certificate + at least 22 1/2 years of age.
Duration:	20-50 weeks depending on academic achievement level and experience of individual trainees
Description:	Engineering knowledge, mathematics, applied mechanics, heat and heat engines, engineering drawing, electrotechnology, elementary naval architecture.
Objective:	To prepare candidates for MOT examinations for Marine Engineer 1st Class certificate of competency.

MASTER MARINER

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	A total of at least 36-months' sea service as officer in charge of the watch on vessels of at least 25 tons gross tonnage, of which at least 12 months shall have been served on vessels making foreign-going voyages or voyages including a deep sea passage.
Duration:	Approximately 34 weeks
Description:	Navigating instruments, ship management, naval architecture, engineering knowledge, electricity, general seamanship, orals.
Objective:	To prepare candidates for MOT examinations for Master Mariner certificate of competency.

OCEAN NAVIGATION II (ON II)

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	Watchkeeping Mate certificate + 12-months' sea service + an eyesight and colour blindness test. (Certificate will not be issued until candidate reaches 19 years of age.)
Duration:	12 weeks after completion of CN II or total of 36 weeks
Description:	Communications, industrial safety and ship management, ship construction and cargo, general seamanship, stability, astro-navigation, engineering knowledge.
Objective:	To prepare candidates for MOT examinations for ON II certificate of competency.

OCEAN NAVIGATION I (ON I)

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	ON II or CN II certificate + 12-months' sea service while holding either certificate of competency. (Certificate will not be issued until candidate reaches 21 years of age.)
Duration:	30 weeks for CN I + 12 additional weeks for ON I
Description:	Chartwork and pilotage, navigation safety, ship management, cargo, general seamanship, meteorology and engineering knowledge, navigation, meteorology, construction and engineering.
Objective:	To prepare candidate for MOT examinations for ON I certificate of competency.

PRE-EMPLOYMENT MARINE ENGINEERING*

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	Grade 10, or equivalent + be physically fit + have aptitude for mechanics.
Duration:	36 weeks (180 days)
Description:	Basic & special engine tools, shop safety, principles of internal combustion engines employing electrical or compression ignitions, engine physics & chemistry, gas & diesel engine systems & components, testing, maintenance & overhaul of gas & diesel engines & systems, types & repair of clutches, standard & automatic transmissions, including marine automatic transmissions, field trips.
Objective:	To prepare trainees for employment in the service, overhaul and maintenance of gas and diesel engines used in various kinds of equipment & in marine applications such as propulsions and auxiliary drives.

*Successful completion and certification of attendance time allows candidate remission of sea service required for a Marine Engineer 4th Class certificate to a maximum of 12 months.

SIMULATED ELECTRONIC NAVIGATION I (SEN I)

Location:	Waterfront Centre, Summerside (E)
Duration:	6 weeks
Description:	Radar plotting, radar theory, operation and principles of navigation aids, anti-collision exercises and coastal navigation.
Objective:	To provide fishermen and mariners with practical ways of developing and improving capacities and aptitudes in art of maritime navigation, and to increase confidence and competence in avoiding collisions.
Certificate:	A certificate of completion is issued by MOT.

SIMULATED ELECTRONIC NAVIGATION II (SEN II)*

Location:	Waterfront Centre, Summerside (E)
Duration:	2 weeks
Description:	Anti-collision exercises, turning circles, stopping distances, blind pilotage, anchoring exercises.
Objective:	To prepare and enhance skills in water safety, survival and rescue.
Certificate:	A certificate of completion is issued by MOT.

*Course for Masters of most vessels.

UNLICENSED DECK PERSONNEL*

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	Must be free from any disabilities + be at least 18 years of age.
Duration:	12 weeks
Description:	Emergency procedures, safety, nautical terminology, seamanship, watchkeeping, ship maintenance, anchoring and berthing, machinery operations, handling cargo, handling boats and barges, practicing human relations.
Objective:	To prepare trainees for employment aboard ships and develop the competence required to carry out shipboard duties as a seaman.

*This course is conducted on the Dacum system of individualized training and will help prepare those going for a Deck Officer's certificate.

WATCHKEEPING MATE

Location:	Waterfront Centre, Summerside (E)
Prerequisites:	24-months' sea service + eyesight and colour blindness test. (Certificate will not be issued until candidate reaches 18 years of age.)
Duration:	Approximately 24 weeks
Description:	Orientation, chartwork and pilotage, electronic and other aids to navigation, general ship knowledge, oral and practical.
Objective:	To prepare candidates for MOT examinations for Watchkeeping Mate certificate of competency.

V. QUEBEC

FISHERIES AND MARINE—RELATED PROGRAMS AND COURSES:
DEGREES; MOT CERTIFICATE PREPARATION; DIPLOMAS; CERTIFICATES OF COMPLETION OR ACCOMPLISHMENT (CC) OR VOCATIONAL CERTIFICATES (VC)

	Degrees	MOT Certificate Preparation	Diploma	CC or VC
MICR	None	*Nautical Science Options:* CN I & II; Command Endorsement; First Mate Ferry Steamship (Short, Intermediate & Long Run); MED II & III; Master Ferry Steamship (Short, Intermediate & Long Run); Master Mariner; Master Minor Waters; [Navigation—Pre-MOT Preparation]; ON I & II; SEN I & II; Watchkeeping Mate *Marine Engineering Options:* MED II & III; Marine Engineer Class 1, 2, 3, 4; Marine Engineering—Pre-Marine Engineer 4th Class	Marine Engineering: CEGEP Diploma + Pre-Marine Engineer 4th Class MOT Certification; Naval Architecture: CEGEP Diploma; Navigation: CEGEP Diploma + Pre-MOT Certification	Radio-Communications (CC + Pre-RGMC license, Department of Communications)
Specialized Fisheries Centre	None	*Nautical Science Options:* Inshore Fishing II [preparatory to Fishing Master Class 4]; MED I; Master Small Craft; Offshore Fishing [preparatory to Fishing Master Class 3] *Marine Engineering Options:* MED I; Watchkeeping Engineer of a Motor-Driven Fishing Vessel	Harvesting and Marine Resource Management: CEGEP Diploma in Fishing Techniques; Processing of Marine Products (3-year program): CEGEP Diploma	Processing of Marine Products (28 weeks): CEGEP (CC); Processing of Marine Products (63 weeks): CEGEP (CC)
University of Quebec at Chicoutimi	M.Sc. in Aquatic Productivity	None	None	None
University of Quebec at Rimouski	M.Sc. in Marine Resource Management	None	None	None

V. QUEBEC

Marine Institute of the CEGEP of Rimouski (MICR)
53 West St. Germain Street
Rimouski, Quebec
G5L 4B4

Telephone (418) 724-2822

The Marine Institute of the CEGEP of Rimouski (MICR) has the exclusive mandate to offer maritime training in Quebec in both the regular session and the extension program. As a specialized institution, its goal is the training of personnel required for the Canadian Merchant Marine.

Teaching at the Institute conforms to the norms of professional training of the Quebec Ministry of Education and also to the training demands of the Federal MOT, so as to permit regular students to obtain a College Diploma and at the same time to sit the MOT examinations for an officer's certificate. The programs are planned to allow the navigation and marine engineering students to complete sea time through a co-operative program which forms part of their training. Programs offered at the Institute are the following:

General and Professional Training (Regular programs offering CEGEP Diploma)

- Naval Architecture
- Navigation
- Marine Engineering
- Radio-Communications

Ministry of Transport Certification (Extension)

- Navigation (Merchant Marine)
- Marine Engineering
- Cooking
- Seamanship

The Extension Service of the Institute organizes courses in cooking, engineering and navigation which are offered mostly at MICR training centers in Quebec City and Montreal, but can also be offered anywhere where the demand is sufficient. Candidates must register at their nearest Canada Employment Centre.

REGULAR PROGRAMS AT THE COLLEGE LEVEL

NOTE: Prerequisites of all programs at the college level, MICR, Rimouski, are as follows: High school diploma (or near-completion of high school) + Mathematics and Physics courses (except for Radio-Communications students) + good health and eyesight + eyesight test (for Navigation students) + hearing test (for Radio-Communications students). Mature students and transferring students will be evaluated individually.

A. FISHERMEN

No courses offered.

B. PLANT WORKERS

No courses offered.

C. MANAGEMENT

No courses offered.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

MARINE ENGINEERING*

Location:	MICR, Rimouski (F)
Duration:	4 years, CEGEP (3 years CEGEP + 1 year at sea)
Description:	General and applied mathematics, graphic sciences I, marine engines I, II, III & IV, differential and integral calculus, electricity I, II & III, thermal physics I, II & III, general engine technology, construction, automation and control I & II, electrotechnology I & II, stability, graphic and analytical statics, applied physics and chemistry, mechanics, specialized design, science of materials, supervising engines, refrigeration and air conditioning, resistance of materials, propulsion, administration, English, French, philosophy, physical education.
Objective:	To acquire the theoretical and practical knowledge necessary to obtain a CEGEP Diploma and tickets issued by MOT.
Certificate:	Successful students obtain a CEGEP Diploma and may sit MOT examinations.

*This is a co-operative program in which the student must complete three four-month periods at sea. Because the Institute is approved by MOT, the student receives an equivalent of sea time for the time spent at the Institute.

MARINE EMERGENCY DUTIES II - see page 145

MARINE EMERGENCY DUTIES III - see page 145

NAVAL ARCHITECTURE

Location:	MICR, Rimouski (F)
Duration:	3 years, CEGEP
Description:	Applied mathematics I & II, graphic sciences, mechanics of fluids, naval hull construction I, II, III, IV & V, engines I, II, III, IV & V, graphic and analytical statics, resistance of materials, specialized design I, II & III, ship theory I, II & III, elements of thermodynamics, technical businesses and marine organizations I & II, materials and assemblage procedures I & II, introduction to Fortran and Basic, thermal assessment, administration, English, French, philosophy, physical education.
Objective:	To provide training for technicians to work in the areas of naval construction, architecture, design, and related areas.
Certificate:	Upon successful completion the student obtains a CEGEP Diploma.

NAVIGATION*

Location:	MICR, Rimouski (F)
Duration:	4 years, CEGEP
Description:	General and applied mathematics, graphic and analytical statics, electricity I & II, marine technology, inshore navigation I, II, III, IV & V, differential and integral calculus I, graphic sciences I, cargo I, li & III, rules of the road, construction I & II, marine studies I, II & III, nautical astronomy, navigational aids I, II & III, stability I & II, SEN, celestial navigation I & II, meteorology I & II, marine engines I & II, administration, English, philosophy, French, physical education.
Objective:	To help students acquire the theoretical and practical knowledge necessary to obtain a CEGEP Diploma and tickets issued by MOT.
Certificate:	Successful students obtain a CEGEP Diploma and may sit MOT examinations.

*This is a co-operative program in which the student must complete three four-month periods at sea. Because the Institute is approved by MOT, the student receives an equivalent of sea time for the time spent at the Institute.

RADIO-COMMUNICATIONS

Location:	MICR, Rimouski (F)
Duration:	2 years, CEGEP
Description:	Morse code, traffic and procedures, meteorology, electronics, geography and marine environment, English, trouble-shooting, radio apparatus, report writing, introduction to the micro-computer, navigational aids.
Objective:	To provide students with training for the professions of radio-operator and electronics technician.
Certificate:	Successful students obtain an Attestation of College Studies and can sit the Federal Ministry of Communications examinations for the Radio-Communication Operator's General Certificate (RGMC).

SIMULATED ELECTRONIC NAVIGATION I - see page 148

SIMULATED ELECTRONIC NAVIGATION II - see page 149

EXTENSION COURSES, MICR

Extension Training Centres

MICR
Administration and Training
53 West St-Germain
Rimouski, Quebec
G5L 4B4

Telephone (418) 724-2822

MICR
Marine Emergency Duties
Training Centre (MEDTC)
P. O. Box 2156
St-Romuald, Quebec
G6W 5M5

Telephone (418) 835-1621

MICR
Montreal Centre
CEGEP Andre Laurendeau
1111, rue Lapierre
Ville Lasalle, Quebec
H8N 2J4

Telephone (514) 367-4710

MICR
Quebec Centre
Extension Training
905, rue des Prairies (angle
St-Roch)
Quebec, Quebec
G1K 3M5

Telephone (418) 692-1185

A. FISHERMEN

No courses offered.

B. PLANT WORKERS

No courses offered.

C. MANAGEMENT

No courses offered.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

COASTAL NAVIGATION II (CN II)

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	8 school years + 8-months' sea service + other requirements of MOT.
Duration:	Depends on knowledge and experience of candidate
Description:	Communications, ship construction, general seamanship, ship management, stability.
Objective:	To prepare candidates for MOT examinations for CN II certificate of competency.

COASTAL NAVIGATION I (CN I)

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	8 school years + 8-months' sea service + other requirements of MOT.
Duration:	Depends on knowledge and experience of candidate
Description:	SEN II, chartwork and pilotage, navigation safety, ship management, cargo, meteorology, general seamanship, technical knowledge.
Objective:	To prepare candidates for MOT examinations for CN I certificate of competency.

COMMAND ENDORSEMENT

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	8 school years + 8-months' sea service + other requirements of MOT.
Duration:	Depends on knowledge and experience of candidate
Description:	Chartwork and pilotage, meteorology, ship management, general seamanship.
Objective:	To prepare candidates for MOT examinations for Command Endorsement certificate of competency.

FIRST MATE FERRY STEAMSHIP (SHORT RUN)

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	8 school years + 1-month sea service + other requirements of MOT.
Duration:	Depends on knowledge and experience of candidate
Description:	Chartwork and pilotage, ship business, ship management, oral examination.
Objective:	To prepare candidates for MOT examinations for First Mate Ferry Steamship (Short Run) certificate of competency.

FIRST MATE FERRY STEAMSHIP (INTERMEDIATE RUN)

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	8 school years + 8-months' sea service + other requirements of MOT.
Duration:	Depends on knowledge and experience of candidate
Description:	Navigating instruments, SEN I, chartwork and pilotage, navigation safety, general seamanship, general navigation, mathematics.
Objective:	To prepare candidates for MOT examinations for First Mate Ferry Steamship (Intermediate Run) certificate of competency.

FIRST MATE FERRY STEAMSHIP (LONG RUN)

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	8 school years + 8-months' sea service + other requirements of MOT.
Duration:	Depends on knowledge and experience of candidate
Description:	Navigating instruments, SEN I, chartwork and pilotage, navigation safety, seamanship, navigation, mathematics, ship management, general ship knowledge.
Objective:	To prepare candidates for MOT examinations for First Mate Ferry Steamship (Long Run) certificate of competency.

MARINE COOKING (BEGINNER)

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	10 school years.
Duration:	15 weeks, including 3 weeks at sea
Description:	Preparation of food, supplies, conservation, administration, inventory, costs of foods, marine regulations concerning anti-pollution at sea.

MARINE COOKING (ADVANCED)

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	18 years old + High School - Level IV + 'Marine Cooking (Beginner)' course + 1 year at sea as ship's cook.
Duration:	12 weeks
Description:	Review and summing up of subjects, administration, carving of meat, advanced cooking.

MARINE EMERGENCY DUTIES II (MED II)*

Location:	MICR, MED Training Centre, St-Romuald (F)
Duration:	3 weeks
Description:	Lifesaving, fighting fire and smoke, damage control, rescue and survival.
Objective:	To prepare candidates for MOT examinations for MED II certificate.

*Course for those attempting to obtain MOT certificates of competency as Watchkeeping Engineer, 4th and/or 3rd Class Marine Engineer or Fishing Master Class II.

MARINE EMERGENCY DUTIES III (MED III)

Location:	MICR, MED Training Centre, St-Romuald (F)
Duration:	1 week
Description:	Course offered primarily for senior officers of the Merchant Marine to develop leadership and the decision-making process in emergency situations.
Objective:	To prepare senior officers for MOT examinations for MED III certificate.

MARINE ENGINE MECHANICS (HELPER)

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	17 years old + High School - Level IV.
Duration:	12 weeks
Description:	Engine room adjustments, construction and stability, security, electricity, physics, diesel engine, gas turbines, steam turbines, power-engine, auxiliaries, refrigeration, distributor system.

MARINE ENGINEER, 4TH CLASS

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	21 years old + 8-months' experience at sea performing pertinent engineering tasks.
Duration:	Depends on knowledge and experience of candidate
Description:	Motor/steam knowledge, general engineering knowledge, design, electricity, electrotechnology, mathematics, physics.
Objective:	To prepare candidates for MOT examinations for Marine Engineer, 4th Class certificate of competency.

MARINE ENGINEER, 3RD CLASS

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	4th Class certificate + required sea time.
Duration:	Depends on knowledge and experience of candidate
Description:	Motor/steam knowledge, general engineering knowledge, mathematics, physics, electricity, thermodynamics, electrotechnology.
Objective:	To prepare candidates for MOT examinations for Marine Engineer, 3rd Class certificate of competency.

MARINE ENGINEER, 2ND CLASS

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	3rd Class certificate + required sea time.
Duration:	Depends on knowledge and experience of candidate
Description:	Applied mechanics, heat and thermal engines, blueprints, electrotechnology, naval architecture, applied mathematics, general engineering knowledge - steam and motor.
Objective:	To prepare candidates for MOT examinations for Marine Engineer, 2nd Class certificate of competency.

MARINE ENGINEER, 1ST CLASS

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	2nd Class certificate + required sea time.
Duration:	Depends on knowledge and experience of candidate
Description:	Applied mechanics, heat and thermal motors, electrotechnology, naval architecture, general engineering knowledge - steam and motor.
Objective:	To prepare candidates for MOT examinations for Marine Engineer, 1st Class certificate of competency.

MASTER FERRY STEAMSHIP (SHORT RUN)

Location:	MICR, Rimouski or Off-campus(F)
Prerequisits:	20 years old + 3 months' sea service + MED II.
Duration:	Depends on knowledge and experience of candidate
Description:	Chartwork and pilotage, ship knowledge, ship business, oral examination.
Objective:	To prepare candidates for MOT examinations for Master Ferry Steamship (Short Run) certificate of competency.

MASTER FERRY STEAMSHIP (INTERMEDIATE RUN)

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	21 years old + 18-months' sea service while holding an officer's certificate + SEN II, or Watchkeeping Mate or First Mate Ferry Steamship (Long Run) certificate.
Duration:	Depends on knowledge and experience of candidate
Description:	SEN II, ship management, stability, general seamanship, mathematics.
Objective:	To prepare candidates for MOT examinations for Master Ferry Steamship (Intermediate Run) certificate of competency.

MASTER FERRY STEAMSHIP (LONG RUN)

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	21 years of age + 18-months' sea service while holding an officer's certificate + SEN II, or Watchkeeping Mate or First Mate Ferry Steamship (Long Run) certificate + 36-months' sea service.
Duration:	Depends on knowledge and experience of candidate
Description:	SEN II, ship management, stability, communications, chartwork and pilotage, navigation safety, general seamanship.
Objective:	To prepare candidates for MOT examinations for Master Ferry Steamship (Long Run) certificate of competency.

MASTER MARINER

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	8 school years + requirements of MOT.
Duration:	Depends on knowledge and experience of candidate
Description:	SEN II, navigating instruments, ship management, technical knowledge, general seamanship, naval architecture, electricity.
Objective:	To prepare candidates for MOT examinations for Master Mariner certificate of competency.

MASTER, MINOR WATERS

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	8 school years + 8-months' sea service.
Duration:	Depends on knowledge and experience of candidate
Description:	Chartwork and pilotage, ship business, ship knowledge, oral and practical examination.
Objective:	To prepare candidates for MOT examinations for Master, Minor Waters certificate of competency.

OCEAN NAVIGATION II (ON II)

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	8 school years + 8-months' sea service + other requirements of MOT.
Duration:	Depends on knowledge and experience of candidate
Description:	Communications, ship management, ship construction, stability, celestial navigation, technical knowledge, educational seamanship.
Objective:	To prepare candidates for MOT examinations for ON II certificate of competency.

OCEAN NAVIGATION I (ON I)

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	8 school years + 8-months' sea service + other requirements of MOT.
Duration:	Depends on knowledge and experience of candidate
Description:	SEN II, chartwork and pilotage, navigation safety, ship management, cargo, meteorology, construction and engineering, mathematics, navigation, general seamanship.
Objective:	To prepare candidates for MOT examinations for ON I certificate of competency.

SEAMANSHIP (BEGINNER)

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	9 school years including High School - Level III.
Duration:	12 weeks
Description:	Ropes and canvas, firefighting, pyrotechniques, wires and cables, bridge & deck equipment, ship maintenance, loading and unloading, painting, anchoring, docking and casting-off, rudders.

SIMULATED ELECTRONIC NAVIGATION I (SEN I)*

Location:	MICR, Rimouski or Off-campus (F)
Duration:	180 hours
Description:	Part A (90 hours) - practical use of radar, radiogoniometre, Decca, Loran, Omega, ultra-sounder, satellite navigation, sextant, gyrocompass, magnetic compass, R/T. Part B (90 hours) - radar simulation exercises.
Objective:	To provide fishermen & mariners with practical ways of developing and improving capacities & aptitudes in art of maritime navigation; and to increase confidence & competence in avoiding collisions.
Certificate:	A MOT certificate of completion is issued.

*Continuous intake, course offered to a maximum of 8 candidates.

SIMULATED ELECTRONIC NAVIGATION II (SEN II)*

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	SEN I certificate. Course for future holder of ON I or CN I or Command Endorsement, Master Mariner, Master Ferry Steamship (Long Run or Intermediate Run).
Duration:	60 hours
Description:	Exercises simulating navigation under all possible conditions.
Objective:	To prepare and enhance skills in planning a practical course for the ship to follow in coastal and pilotage waters, having due regard for all navigational factors, identifying and taking collision-avoidance action in multi-ship situations, with & without navigational restrictions, and to develop increased levels of confidence and competence in the art of blind pilotage.
Certificate:	A MOT certificate of completion is issued.

*Continuous intake, course offered to a maximum of 8 candidates.

TANKER TRANSPORT

Location:	MICR, Rimouski or Off-campus (F)
Duration:	30 hours
Description:	Regulations and codes for transport of petroleum products, cargo and ballast, tanker design and construction, properties of petroleum products, pollution, safety measures, handling of the cargo, washing the holds, emergency measures, firefighting, health and safety.

WATCHKEEPING MATE

Location:	MICR, Rimouski or Off-campus (F)
Prerequisites:	8 school years + 8-months' sea service + other requirements of MOT.
Duration:	Depends on knowledge and experience of candidate
Description:	Navigating instruments, chartwork and pilotage, general ship knowledge, navigation safety, general seamanship.
Objective:	To prepare candidates for the MOT examinations for Watchkeeping Mate certificate of competency.

Specialized Fisheries Centre
P.O. Box 220
Grande-Rivière, Quebec
G0C 1V0

Telephone (418)385-2241

The Specialized Fisheries Centre is a campus of the Gaspésie College and as such is considered as an institution at the collegiate level. The Centre functions on two levels: on the one hand, it provides training at the collegiate, secondary and adult levels; on the other hand, it conducts applied research which includes technical assistance, scientific popularization, and the design and implementation of scientific leadership and information packages for use in the fishing industry.

The Centre aims at the teaching and general improvement of adult fishermen of Quebec. It carries out a needs assessment of the area, as well as organizes and develops training programs. Extension courses are offered by means of local school boards. To assure a certain uniformity, the Specialized Centre sets up the programs and trains the teachers; however the courses are given in the area where the demand is justified. Candidates must register at their nearest Canada Employment Centre. Programs offered at the Centre are the following:

General and Professional Training

- Harvesting and Handling (College)
- Processing of Marine Products (College)
- Fisherman (High School)
- Fish Processing (High School)
- Marine Mechanics (High School)
- Engineer of a Fishing Vessel (High School)

Ministry of Transport Certification

- Fishing Master Class III & IV

Extension Courses

- Fishing Techniques and Fishing Gear

The former building which housed the Specialized Fisheries Centre burned in November, 1984. A new building is being constructed for September, 1986. The Centre is proposing to set up new courses for this date such as:

- Naval Construction
- Fishing Boat Repair
- Plant Quality Sensitivity
- Federal and Provincial Legislation vs. Product Quality

EXTENSION COURSES

A. FISHERMEN

DECKHAND (PRE-SEA)

Location:	Specialized Fisheries Centre, Grande-Rivière or Off-campus (F)
Duration:	8 weeks, Winter
Description:	On-board fish handling, mending fixed & mobile nets, splices and knots, MED I, health and work safety.
Objective:	To instruct candidates in the skills necessary to make and repair nets, lines, trawls and other fishing gear, grade, gut and store fish, clean and paint boats, work in engine rooms.

DRAGNETS

Location:	Specialized Fisheries Centre, Grande-Rivière or Off-campus (F)
Prerequisites:	6 years of schooling + a season of fishing + must be experienced in mending fixed & mobile nets.
Duration:	5 weeks, Winter
Description:	Types of trawls, preparation, repairing & installation, rigging.
Objective:	To instruct students in assembling and repairing trawls.

INSHORE FISHING I

Location:	Specialized Fisheries Centre, Grande-Rivière or Off-campus (F)
Duration:	I8 weeks, Winter
Description:	Fishing boat management, health and work safety, on-board fish handling, mending fixed nets, splices and knots, stationary fishing and fixed nets, inshore marine engines, MED I, radio/telephone communications, elements of navigation.
Objective:	To help students to acquire elementary knowledge in navigation, fishing gear and engines.

INSHORE FISHING II*

Location:	Specialized Fisheries Centre, Grande-Rivière or Off-campus (F)
Duration:	26 weeks, Winter
Description:	Fishing boat management, health and work safety, on-board fish handling, mending fixed nets, stationary fishing and fixed nets, MED I, radio/telephone communications, inshore marine engines, chartwork and pilotage, navigation safety, navigating instruments, manoeuvring and seamanship.
Objective:	To provide instruction for the candidate to command an inshore fishing boat less than 17.35 meters in length, manage the crew and fishing operations, locate fish, and be the ship's administrator.

*Prepares the candidate for the MOT Fishing Master Class IV certificate.

MARINE EMERGENCY DUTIES I (MED I)

Location:	Specialized Fisheries Centre, Grande-Rivière or Off-campus (F)
Duration:	1 week
Description:	First Aid, survival, lifesaving, firefighting and fire prevention.
Objective:	To provide basic training for fishermen concerning lifesaving instruments, firefighting, First Aid and survival.

OFFSHORE FISHING*

Location:	Specialized Fisheries Centre, Grande-Rivière or Off-campus (F)
Prerequisites:	Must have completed Parts A & B of 'Inshore Fishing II' + 12-months' sea time.
Duration:	15 weeks, Winter
Description:	Chartwork & pilotage, navigation safety, navigating instruments, communications, general ship knowledge, manoeuvring and seamanship.
Objective:	To provide instruction for the candidate to command a fishing boat of 17.37 meters or more, manage the fishing operations and the crew, locate fish, and be the ship's administrator.

*Prepares the candidate for the MOT Fishing Master Class III certificate.

WATCHKEEPING ENGINEER OF A MOTOR-DRIVEN FISHING VESSEL

Location:	Specialized Fisheries Centre, Grande-Rivière or Off-campus (F)
Prerequisites:	Must be a fisherman or person responsible for the engines on a boat having a motor of at least 75 horsepower.
Duration:	8 weeks, Winter
Description:	Marine engines and auxiliaries, propulsion and steering system, heating and refrigeration systems, pumping system, steam boilers, work project in engine room, electrical system, deck equipment, MED I.
Objective:	To provide instruction for the student to repair and do general maintenance on auxiliary engines of fishing boats.

B. PLANT WORKERS

INSPECTION AND GRADING OF MARINE PRODUCTS*

Location:	Specialized Fisheries Centre, Off-campus - Ministry of Agriculture, Fisheries and Food, Quebec (F)
Prerequisites:	A CEGEP diploma with pertinent specific options.
Duration:	12 weeks
Description:	Marine sciences, methods of grading and classification, federal and provincial laws and regulations, biology, biochemistry of marine products, health and hygiene, human relations, administration, application of the law.
Objective:	To provide trained personnel who are able to ensure observance of laws regarding farm products, marine products and the ensuing regulations.

*Course for training provincial fish inspectors.

SPLITTING AND SALTING OF FISH

Location:	Specialized Fisheries Centre, Grande-Rivière (F)
Duration:	3 weeks, Winter
Objective:	To teach the candidate to split, salt and dry fish following the standards of hygiene and health.

C. MANAGEMENT

No courses offered.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

MASTER OF A SMALL PASSENGER CRAFT

Location:	Specialized Fisheries Centre, Grande-Rivière or Off-campus (F)
Prerequisites:	Must own a passenger craft or have worked on one as a helper.
Duration:	14 weeks, Winter
Description:	General ship knowledge, manoeuvring, MED I, radio/telephone communications, fishing boat management, health and work safety, chartwork and pilotage.
Objective:	To prepare candidates to navigate a motor-driven boat, transporting passengers in the context of tourist excursions on the sea.

NOTE:

Part-time courses can also be offered in the following subjects:

AQUACULTURE (BLUE MUSSELS)
FISHING BOAT MANAGEMENT
FISHING GEAR TECHNOLOGY
HEALTH AND WORK SAFETY
HYGIENE AND SAFETY
INDUSTRIAL RELATIONS
INTRODUCTION TO MAPS AND INSTRUMENTS
MANAGEMENT AND ADMINISTRATION OF A RETAIL FISH MARKET
MENDING OF MOBILE NETS
MENDING OF FIXED NETS
METRIC SYSTEM
PRODUCT PACKAGING
QUALITY OF FISH PRODUCTS
RADIO/TELEPHONE COMMUNICATIONS
REFRIGERATION I
REFRIGERATION II
SPECIAL COURSES DEMANDED BY A GROUP

HIGH SCHOOL AND CEGEP PROGRAMS

A. FISHERMEN

ENGINEER OF A FISHING VESSEL

Location:	Specialized Fisheries Centre, Grande-Rivière (F)
Duration:	2 years, High School
Description:	High school level IV & V motorized equipment, marine engineering, diesel engineering, marine transmissions, checking and maintaining cooling system, safety and lifesaving, stability, naval vocabulary, ships heating, engineer's duties, maintenance and repair of deck equipment, refrigeration and hydraulic systems of a fishing vessel, time at sea.
Objective:	To help students acquire knowledge of all equipment relating to the engine on a fishing vessel.

FISHERMAN

Location:	Specialized Fisheries Centre, Grande-Rivière (F)
Duration:	2 years, High School
Description:	Drawing, cutting & sketching, splices & knots, assembling & repairing lines, nets and trawls, navigation, oceanography, First Aid, on-board preparation and conservation - stages I and II on school's vessel, seamanship, reading of fishing gear plans, charge systems, lighting, carburetion, fuel, injection, adjustments, lubrication, transmissions, filters and combustibles, hydraulics & inflatables, maintenance of deck equipment, stability, electronic navigation aids, fishing boat management.
Objective:	To help students to develop professional skills required of fishermen by the commercial fishing industries.

HARVESTING AND MARINE RESOURCE MANAGEMENT

Location:	Specialized Fisheries Centre, Grande-Rivière (F)
Duration:	3 years, CEGEP
Description:	Mending nets, marine ecology, graphic sciences I & II, fixed nets, mechanics, on-board fish handling and preservation, trawls, maps & pilotage, ichthyology, electricity and magnetism, marine engines, general ship knowledge, navigation and navigation safety, auxiliary engines, fishing boat electricity I & II, ship stability, construction and utilization of fishing gear, fishing equipment, research project, fishing vessel management, meteorology, navigating instruments, signalling and radio-communication, fishing gear technology, ship manoeuvring.
Objective:	To train students to be capable of running a fishing vessel and of collaborating with scientists working on modification and research of new fishing gear.
Certificate:	Successful candidate receives a CEGEP Diploma in Fishing Techniques.

B. PLANT WORKERS

FISH PROCESSING

Location:	Specialized Fisheries Centre, Grande-Rivière (F)
Duration:	2 years, High School
Description:	Receiving of fish, filleting, treatment of fillets, crustacea and mollusca, freezing, product packaging, health and hygiene, management, biochemistry of fish, splitting and salting of fish, drying and smoking, transporting finished product, health and safety in plants.
Objective:	To train specialized workers in the area of fish processing.

PROCESSING OF MARINE PRODUCTS

Location:	Specialized Fisheries Centre, Grande-Rivière (F)
Prerequisites:	High School, Level V.
Duration:	28 weeks, CEGEP
Description:	Ecology, ichthyology, processing, marketing marine products, organization of fish plants, personnel management, work term, bacteriology.
Objective:	To familiarize students with procedures for fish processing & industrial organization of fish plants.
Certificate:	Attestation of CEGEP studies.

C. MANAGEMENT

PROCESSING OF MARINE PRODUCTS

Location:	Specialized Fisheries Centre, Grande-Rivière (F)
Prerequisites:	High school completion (or near completion) + courses in Physics & Mathematics. Mature students accepted with good background in Physics & Mathematics.
Duration:	3 years, CEGEP
Description:	Chemistry, physics, marine ecology, processing I, II & III, electricity and magnetism, ichthyology, biochemistry of marine products I & II, quantitative analysis, work term in a processing plant and in an inspection center, bacteriology of marine products, instrumental biochemistry, commercialization of marine products, industrial organization of fish plants, fish conservation, labour organization in a fish plant, development and promotion of marine products, management of personnel and the firm.
Objective:	To train specialized technicians in the area of processing, treatment of fish and quality control of marine products.
Certificate:	The successful candidate receives a CEGEP Diploma in Fishing Techniques.

PROCESSING OF MARINE PRODUCTS

Location:	Specialized Fisheries Centre, Grande-Rivière (F)
Prerequisites:	High school completion (or near completion) + courses in Mathematics, Physics & Chemistry. Mature students accepted with good background in Mathematics, Physics & Chemistry.
Duration:	63 weeks, CEGEP
Description:	Mathematics, chemistry, biochemistry, physics, ecology, bacteriology, processing, ichthyology, conservation, marketing, organization of fish plants, development and promotion of marine products, personnel management, work term.
Certificate:	A CEGEP certificate is awarded on completion of course.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

MARINE MECHANICS

Location:	Specialized Fisheries Centre, Grande-Rivière (F)
Duration:	2 years, High School
Description:	Motorized equipment, dismantling, assembling, checking, cleaning & repairing the parts of a diesel or gas engine, starting a diesel engine, adjustments, ignition, supply, injection, cooling & air conditioning systems, starters, dynamos, alternators, regulators, charge circuit, filters and combustibles, parallel circuit series, time at sea.
Objective:	To help students to acquire the knowledge of diesel engines and of particularities of the marine engine.

University of Quebec at Chicoutimi
930 East Jacques Cartier Street
Chicoutimi, Quebec
G7H 2B1

Telephone (418) 545-5011
Telex 051-36108

A. FISHERMEN

No courses offered.

B. PLANT WORKERS

No courses offered.

C. MANAGEMENT

MASTERS IN AQUATIC PRODUCTIVITY

Location:	University of Quebec at Chicoutimi (F)
Prerequisites:	B.Sc. (or equivalent) in Biology, Chemistry, Mathematics or Physics with an average of 3 points or pertinent and related knowledge.
Duration:	2 years (60 credits + thesis)
Description:	Biological productivity, impact studies, seminars, training periods.
Objective:	M.Sc. degree and to create specialists capable of understanding the mechanisms and processes which underlie aquatic productivity.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

No courses offered.

University of Quebec at Rimouski
300 Ursulines Avenue
Rimouski, Quebec
G5L 3A1

Telephone (418) 724-1540
Telex 015-8-6302

A. FISHERMEN

No courses offered.

B. PLANT WORKERS

No courses offered.

C. MANAGEMENT

MASTERS IN MARITIME RESOURCE MANAGEMENT*

Location:	University of Quebec, Rimouski (F)
Prerequisites:	B.Sc. in Biology.
Duration:	17 months (45 credits: 7 required courses + 1 research project + 1 training session + 5 electives)
Description:	Required courses: Systematic analysis of fish, decisions and predictions in the fishing industry, fish biology, fishing gear technology, managing fish businesses, fish economics, fish and public management, supervised project; Electives: Accounting & taxation, fisheries & economic development, labour organization, financial planning of a fishing business, harvesting & managing fish stocks, feasibility & impact studies, new products & technology in processing plants, micro-economy of marine resources, commercialization & marketing, management of fish processing plants, commercial research & development of new products.
Objective:	To create managers able to operate effectively in the fishing sector; and to provide training in 3 fundamental areas: biology, economics & management.

*Program will officially begin in September 1986.

D. FISHERIES AND MARINE-RELATED INDUSTRIES

No courses offered.

APPENDICES

NOTE:

Sources of information such as publications, broadcasts, visual aids and research are important components of the education system and for this reason are included here. The lists found in the following appendices are not necessarily complete.

APPENDIX A

PUBLICATIONS AND PUBLIC BROADCAST INFORMATION

Sources listed below provide information that may be helpful to training institutions; however, their main purpose is to provide general fisheries information and awareness to the public.

NEW BRUNSWICK

Fish 'n Ships
(Newsletter)
New Brunswick Department of Fisheries
St. Stephen, New Brunswick

MFU: The Voice of the Maritime Fisherman's Union*
(Newspaper)
P.O. Box 1418
Shediac, New Brunswick
E0A 3G0

The Quoddy Tides
(Newspaper)
Eastport, New Brunswick

Sonar
(Bulletin)
Department of Fisheries & Oceans
Gulf Region
P.O. Box 5030
Moncton, New Brunswick
E1C 9B6

Le Tré-Carré
(Radio Broadcast)
Radio Canada, Moncton

*Suspended for six months due to lack of funds.

NEWFOUNDLAND

Decks Awash
(Magazine)
School of Continuing Studies and Extension
Memorial University of Newfoundland
St. John's, Newfoundland A1C 5S7

Fisherman's Broadcast
(Radio Broadcast)
CBC Radio, St. John's - Province wide
Weekdays 5:30-6:00 p.m.

Land & Sea
(Television Broadcast)
CBC Television, St. John's - Province wide
Monday nights
- 7:30 p.m. - Newfoundland
- 7:00 p.m. - Labrador

Ship's Log
(Newsletter)
Published quarterly by the
Newfoundland Institute of the Fisheries and Marine Technology
(formerly the College of Fisheries)
P.O. Box 4920
St. John's, Newfoundland
A1C 5R3

Union Forum
(Newspaper)
Canadian Food and Commercial Worker's Union
(formerly NFFAWU)
P.O. Box 880
Station 'C'
St. John's, Newfoundland
A1C 5L9

NOVA SCOTIA

Atlantic Fisherman
(Newspaper)
Graphic Advocate Co. Ltd.
P.O. Box 1000
Pictou, Nova Scotia
B0K 1H0

Cape Breton Report
(Radio Broadcast)
CBC Radio, Sydney

First Edition
(Television Broadcast)
CBC, Sydney

Land & Sea
(Television Broadcast)
CBC Television, Halifax

Soundings
(Radio Broadcast)
CBC Radio, Halifax
5:30 a.m. & 5:35 p.m.

The Sou'wester
(Newspaper)
Fundy Group Publications
P.O. Box 128
Yarmouth, Nova Scotia
B5A 4B1

PRINCE EDWARD ISLAND

Fisherman's Forum
(Newspaper)
PEI Fisherman's Association
P.O. Box 3285
Charlottetown, PEI
C1A 4B4

Land & Sea
(Television Broadcast)
CBC Television, Charlottetown

The Lighthouse*
(Newsletter)
PEI Department of Fisheries & Labour
P.O. Box 2000
Charlottetown, PEI
C1A 7N8

Soundings
(Radio Broadcast)
CBC Radio, Charlottetown
5:30 a.m. & 5:35 p.m.

Window on Resources
(Television Broadcast)
CBC Television, Charlottetown

*Published until November 1983; cancelled due to lack of staff.

QUEBEC

Entre-filets
(Magazine)
Department of Fisheries and Oceans, Quebec City

La Semaine verte
(Television Broadcast)
CBC Television, Montreal

Pêcheries et Alimentation
(Magazine)
Provincial Department of Fisheries, Quebec City

Local Newspapers:

- Le Radar
  Magdalen Islands

- Le Havre
  Percé

- Le Chaleur
  Baie des Chaleurs

- Le Pharillon
  Gaspé

- Le Sextant Inc.
  Chevery
  Comté Duplessis
  Québec
  G0G 1G0

- L'Escale
  Rimouski

PRINCE EDWARD ISLAND

Fisherman's Forum
(Newspaper)
PEI Fisherman's Association
P.O. Box 3285
Charlottetown, PEI
C1A 4B4

Land & Sea
(Television Broadcast)
CBC Television, Charlottetown

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  Baie des Chaleurs

- Le Pharillon
  Gaspé

- Le Sextant Inc.
  Chevery
  Comté Duplessis
  Québec
  G0G 1G0

- L'Escale
  Rimouski

APPENDIX B

SOURCES OF MEDIA AND VISUAL MATERIALS AVAILABLE FOR CIRCULATION

The following list of Media and Visual Materials available for circulation is not extensive. Evidence from preliminary research which was conducted, indicates that a great deal of good quality and very useful media and visual materials are being produced; however, these productions are mainly for in-house purposes.

Department of Fisheries and Oceans - contact the Communications Branch of a Regional Office nearest you, or write to:

Communications Directorate
Department of Fisheries and Oceans
Ottawa, Ontario
K1A 0E6

Provincial Department of Fisheries - contact the Public Information Officer.

University or Educational Institution - contact the Extension or Continuing Education Department nearest you and ask for Audio/Visual Catalogue.

Provincial Department of Education - ask for Audio/Visual Services.

National Film Board - contact office nearest you and ask for catalogue.

Radio Quebec, in collaboration with the Specialized Fisheries Centre and the Departments of Education, Fisheries and Food, and Health and Work Safety, will produce a series of ten videos of an educative nature on the fishing industry. Themes chosen for these videos are the following:

1) Fishing with Gill Nets
2) The Longliner Fishery
3) The Lobster Fishery
4) The Scallop Fishery
5) The Crab Fishery
6) The Shrimp Fishery
7) Trawling for Groundfish (Cod) (55-60 ft. boats)
8) Purse Seine Fishing
9) Health and Safety on Fishing Boats
10) The Stern Trawler Fishery (Redfish) (135 ft. boats*)

These videos are scheduled to be available in January 1986.

*Depending on the availability of funds.

APPENDIX C

RESEARCH INSTITUTES AND CENTRES

The following is a list of Research Institutions and Centres within the five Eastern provinces and which, almost without exception, carry out some type of small consultancies or extension programs for the public and for the fishing industry. The implication of this work for training design and implementation should not be overlooked: the important relationship between research and training should be emphasized.

NEW BRUNSWICK

GIRHAG, Interdisciplinary group of fishery research in the Gulf of St. Lawrence, University Centre of Shippagan (University of Moncton), Shippagan, NB E0B 2P0

Huntsman Marine Laboratory, St. Andrews

Marine Biology Research Centre, Université de Moncton, Moncton

Shippagan Marine Centre, Shippagan

NEWFOUNDLAND

C-CORE, Centre for Cold Ocean Resources Engineering, MUN, St. John's

Institute for Marine Dynamics, National Research Council of Canada, (on MUN campus), St. John's

MSRL, Marine Sciences Research Laboratory, MUN, Logy Bay

NICOS, Newfoundland Institute of Cold Ocean Research, MUN, St. John's

NORDCO Ltd. (Newfoundland Oceans Research and Development Corporation Ltd.), Donovan's Industrial Park, St. John's

NOVA SCOTIA

Bedford Institute of Oceanography, Dartmouth

Canadian Institute of Fisheries Technology, Technical University of Nova Scotia, Halifax

Chair of Occupational Health & Safety, University College of Cape Breton, Sydney

Gorsebrook Research Institute for Atlantic Canada Studies, Saint Mary's University, Halifax

Institute for Resource & Environmental Studies, Dalhousie University, Halifax

PRINCE EDWARD ISLAND

Marine Biology Research Centre, University of PEI, Charlottetown

QUEBEC

CIRAST, Centre of Intervention and Research to Better Job Situations, University of Québec at Rimouski

GERMA, Marine Resources Study Group, University of Québec at Rimouski

GIROQ, Inter-university Group of Oceanographic Research of Québec, Montréal, Laval and Rimouski

INRS, National Institute of Scientific Research-Oceanography, Rimouski

Marine Interpretation Centre, Pointe-au-père

Maritime Research Institute of Québec, Rimouski

Maurice Lamontagne Institute (under construction), Ste-Flavie

NOTE:

For other scientific and technical information, contact:

National Research Council of Canada
Canada Institute for Scientific and Technical Information (CISTI)
Ottawa, Ontario, Canada
K1A 0S2